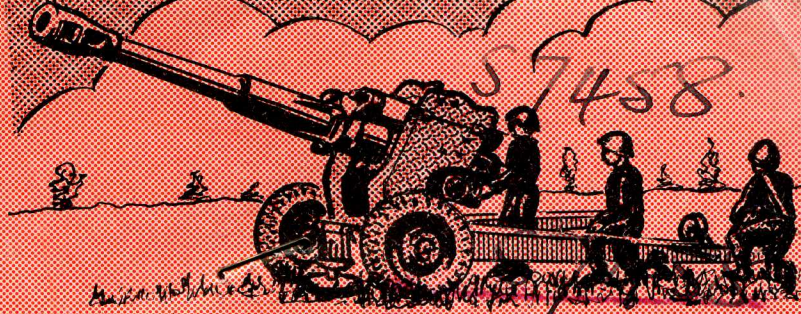


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ARMY TECHNICAL INTELLIGENCE REVIEW

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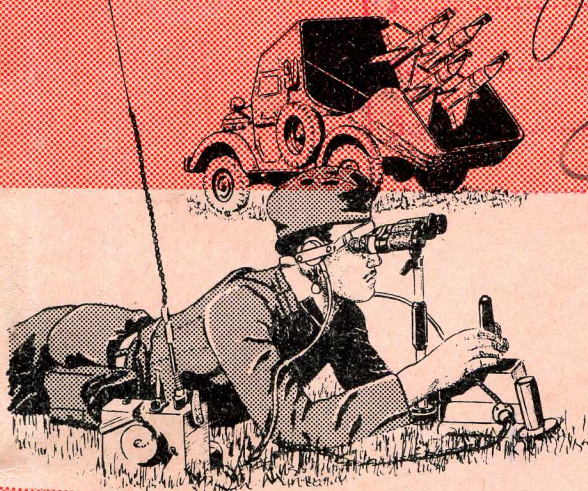
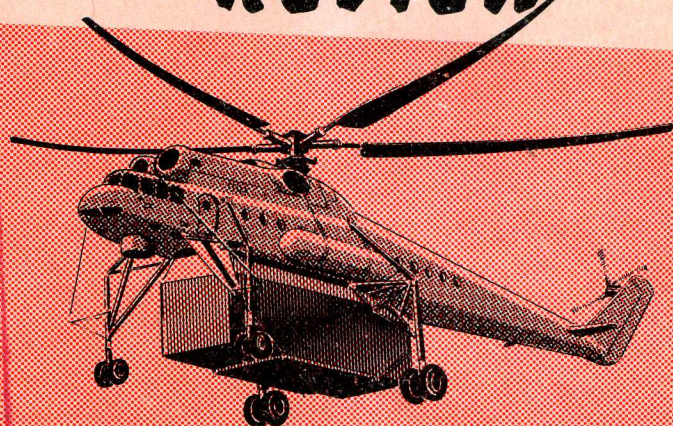
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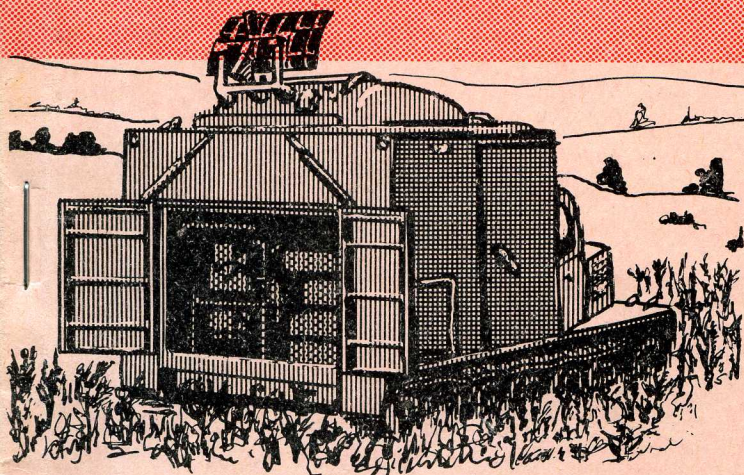
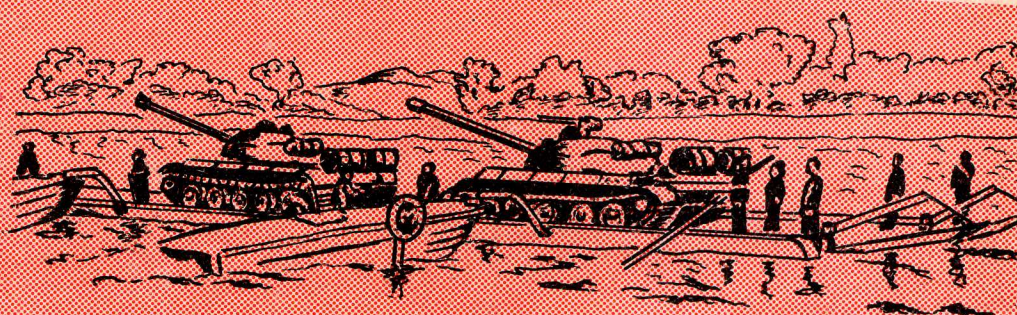
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OCTOBER 1968

Armour School
12 FEB 1969
HOBARTS CAMP



Nº91

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ARMY TECHNICAL INTELLIGENCE REVIEW No 91 (SECRET)

OCTOBER 1968

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ARMY TECHNICAL INTELLIGENCE REVIEW No 91

FOREWORD

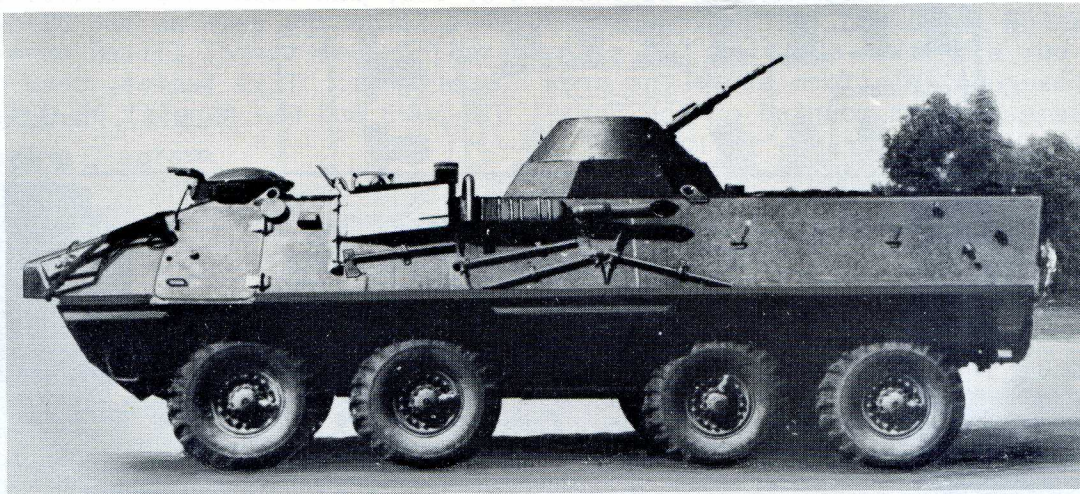
As those of our customers who are concerned will have seen from our latest organisation table issued separately, a number of personnel and desk changes have occurred since our last edition. We have lost John Yerburch, and Joe Jascewsky, and gained Jack Cross, Rex Clark from Australia and Fred Hall from the USA. Our establishment has been changed and a Major post is replaced by a Lieutenant Colonel. Alex Trimmer was the last incumbent as a Major but he left for civilian life some months ago and Jack Cross joined in March as our first G.I. Due to an accident he has now left the Branch again and his successor is awaited; which only goes to show among other things how long it takes to get out an edition of the A.T.I.R. Another small organisational change has recently occurred within the Branch. We have decided that it would be more appropriate for mortars to be included with infantry weapons and consequently responsibility for them has been transferred from the Artillery to the Infantry Desk.

We have introduced in this Issue a "Quiz" on recognition and general knowledge of the equipment of the Soviet Army and it is hoped that our readers will find it both entertaining and of benefit in training.



Col Tech Int (A)

1.Czechoslovakian APC OT-64B



OT-64B

General

The Czechoslovakian/Polish wheeled APC OT-64 has been in service since 1964; it is thought to have been basically designed by the Czechs though assembled both at the KOPROVINICE works and at LUBLIN in Poland. Initially only two versions appeared: the OT-64(Czech) with no fixed armament and the OT-64 (Polish) mounting a 12.7-mm HMG on a rotating shielded platform.

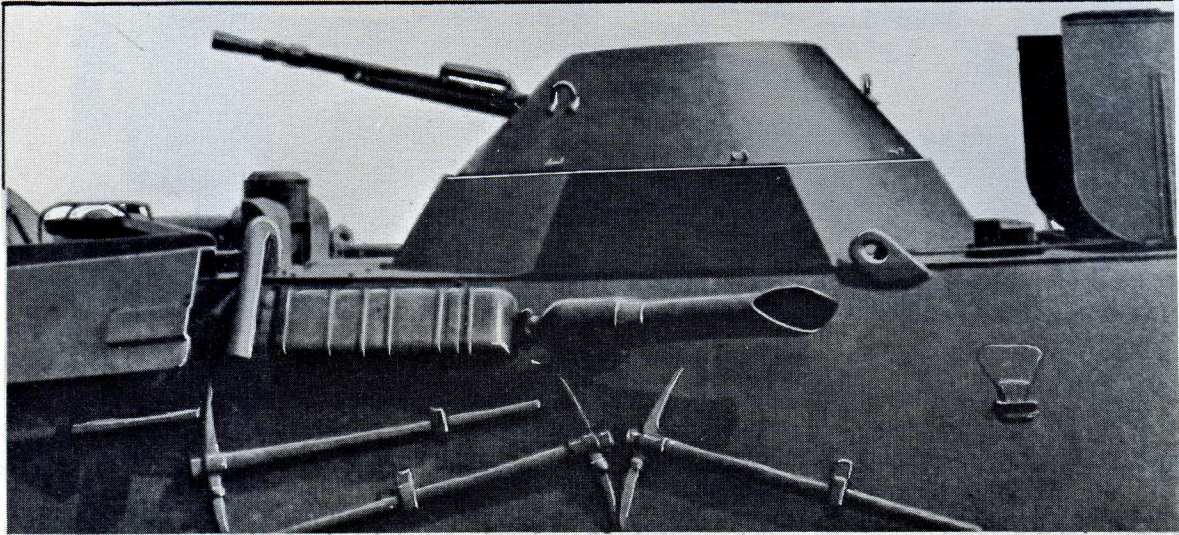


OT - 64 (Czech)

OT-64(Polish)



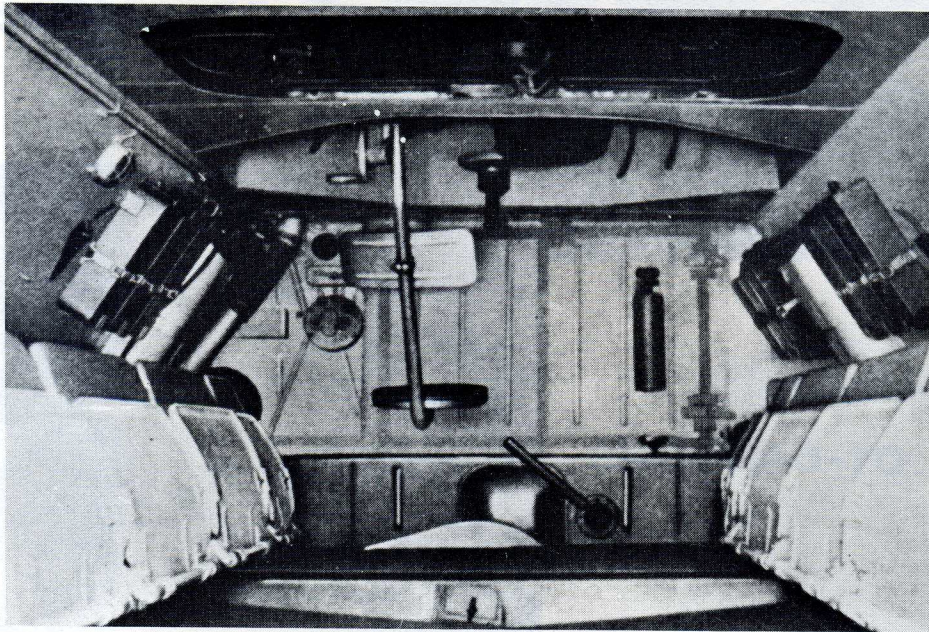
In 1966 a new version, now designated OT-64B, was seen in prototype form at REMBERLOW in Poland. This vehicle appeared to be the same as the OT-64 (Czech) but with the addition of a truncated conical turret fitted on a raised hexagonal platform above the crew compartment. This turret, seen here, is the same as that mounted on the Soviet BTR-60PB and the BRDM(2), both of which also made their appearance in 1966.



OT-64B Turret

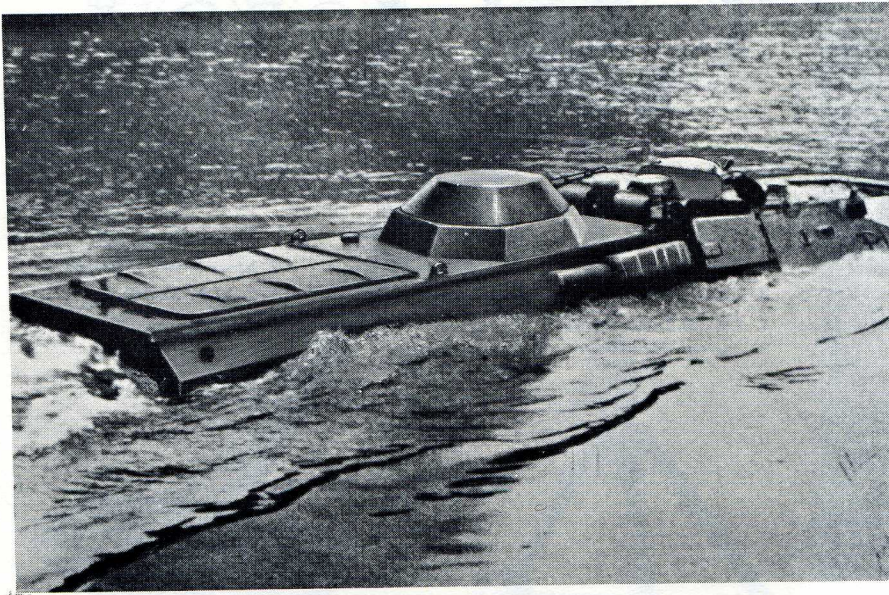
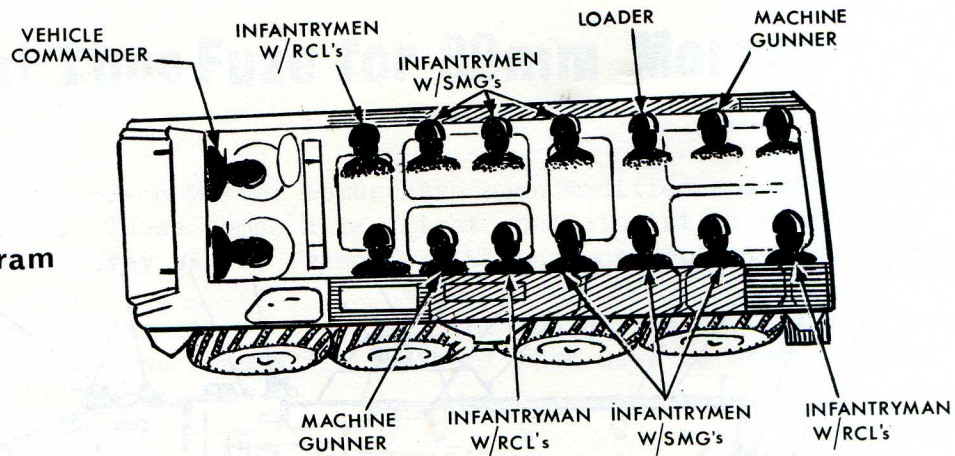
Characteristics

OT-64B carries a crew of three (commander, driver and gunner) and can transport up to fourteen infantrymen seated on folding seats along the sides of their compartment. The commander and driver are seated side by side in the front of the vehicle with the engine sited immediately behind them. The gunner is situated in the main crew compartment and sits on a chair suspended from and rotating with the turret.



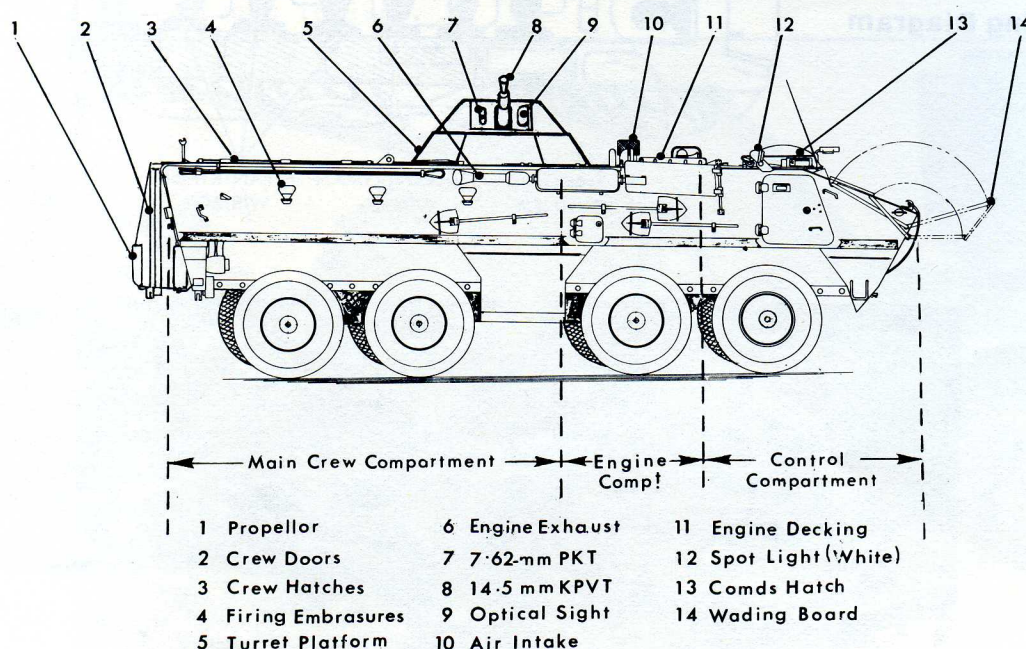
OT-64B Interior

OT-64
Loading Diagram



OT-64B - Swimming

The level of armour protection is low and would probably only keep out small arms fire and some shell splinters. Air filtration and over-pressure are provided as an anti-NBC Warfare measure in addition to the hermetical sealing of the crew compartments. Perhaps the most outstanding characteristic which OT-64B has inherited from its predecessors is its mobility. All 8 wheels are driven and the driver is able to vary the tyre pressures to suit the type of terrain being crossed. It has a maximum speed of 95 kph (59 mph) and has been seen to cross soft ground, tree stumps, heavy snow and negotiate slopes of up to 70% and still give a very stable ride. It has no trouble in keeping up with T-54 tanks in tactical operations. Additionally, it is fully amphibious without any special preparations. With the mounting of the new turret, OT-64B has an offensive capability. Standard armament consists of a 14.5-mm HMG and 7.62-mm coaxially mounted MMG; both are electrically fired and laid through optical sights. Personal arms may be fired through embrasures in the vehicle sides or from the hatches in the roof.



OT-64B - General Layout

Technical Details

Dimensions

Overall height - 8.79 ft (2.680 m)
 Overall width - 8.2 ft (2.500 m)
 Overall length - 24.4 ft (7.440 m)

Battle weight - 16.02 tons

Armour thickness

Hull glacis plate - 10 mm
 Hull sides - 6-10 mm
 Hull top - 6 mm
 Hull belly plate - c 5 mm

Armament - 14.5-mm HMG (KPVT)
 7.62-mm MMG (PKT)

Engine - TATRA 928-14 Diesel (180 BHP
 or TATRA 988-18 Multifuel)

Gearbox - Wilson semi-automatic (5 forward, 1 reverse)

Propulsion in water - two propellers mounted above rear wheel arches

Max speed - roads : 95 kph (59 mph)
 - water : 9 kph (4.8 knots)

2. Chemical Time Fuze for 82mm Mortar

In Vietnam some 82-mm Mortar bombs have been modified and fitted with a chemical delay fuze. These bombs have flight characteristics similar to unmodified bombs and they can be fired from Chinese or Soviet 82-mm Mortars.

Their main use is to attack installations and airfields, but they could also have a harrasing and demoralising effect when used in some tactical situations.



SOVIET 82-mm MORTAR M1937 (1942/43 VERSION)

Principle of Operation

When a bomb fitted with the chemical time fuze is fired and strikes the ground the firing pin is not released immediately, but is held back by a plastic arrestor. After a delay during which a corrosive solution eats away the plastic arrestor the firing pin is released and the bomb explodes.

The corrosive solution is contained in a glass tube which is inserted into the detonator just before firing. When the detonator is tightened the glass tube is broken and the solution is released. A spring mechanism keeps the fuze safe until the bomb strikes the ground.

If a detonator is tightened into a bomb which is not subsequently fired then, provided action is taken within 20 minutes, the detonator can be removed and the corrosive solution allowed to drain away. After 20 minutes a bomb which has not been fired must be destroyed.

The length of delay is determined by the solution used and this is indicated by the colour as follows:

Colour	Delay at 32° Centigrade
Dark Yellow	Approx $2\frac{1}{2}$ hours)
Bright Red	" $3\frac{1}{2}$ ") Plus or Minus
Blue	" 5 ") 20%
Violet	" 8 ")

Below 30°C the delay may be appreciably longer than normal.

Packaging

Each box contains:

Three 82-mm Mortar time fuze bombs. Each bomb, with increments and delay fuze, in a separate tightly closed metal case.

A wrench.

A small box containing 5 glass tubes of corrosive solution:

2 tubes of dark yellow

1 tube of bright red

1 tube of blue

1 tube of violet

User instructions

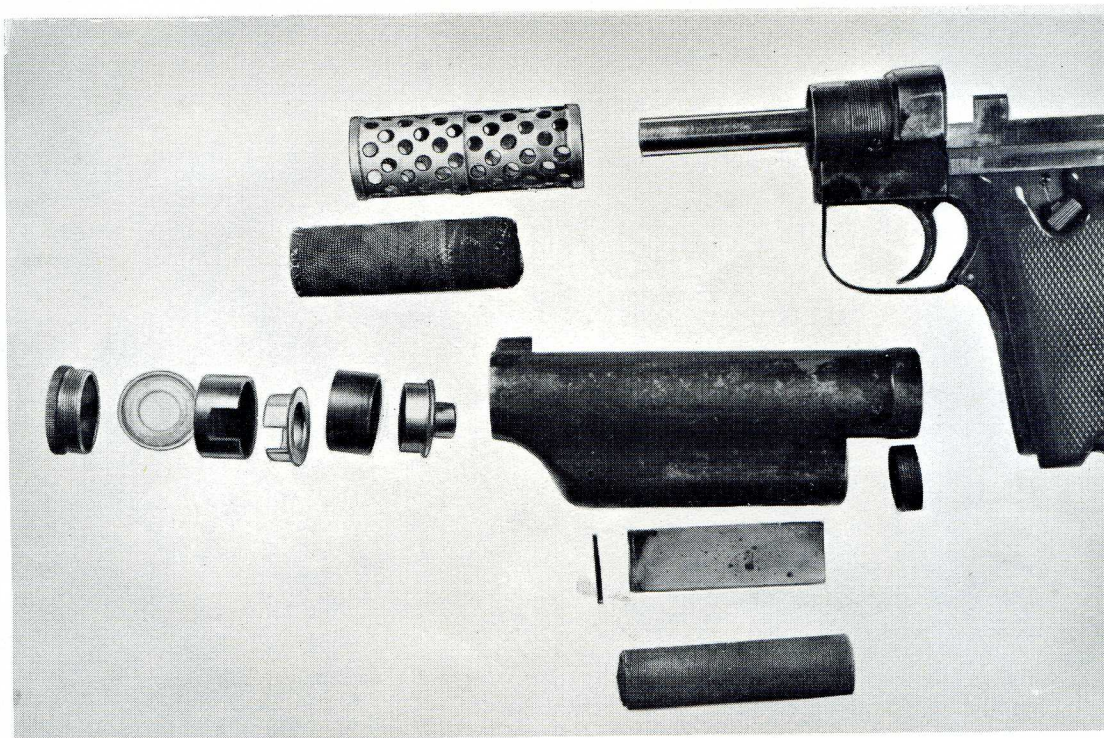
3. Silenced Pistol Type 64 (?)



A pistol which has a built in silencer, and hence is of considerable value in clandestine or terrorist operations has been recovered in Vietnam.

The pistol fires a special 7.65-mm cartridge on both semi-automatic and manual fire with a report judged to be roughly that of the bolt noise from an empty Stirling SMG, though manual firing gives the quietest results.

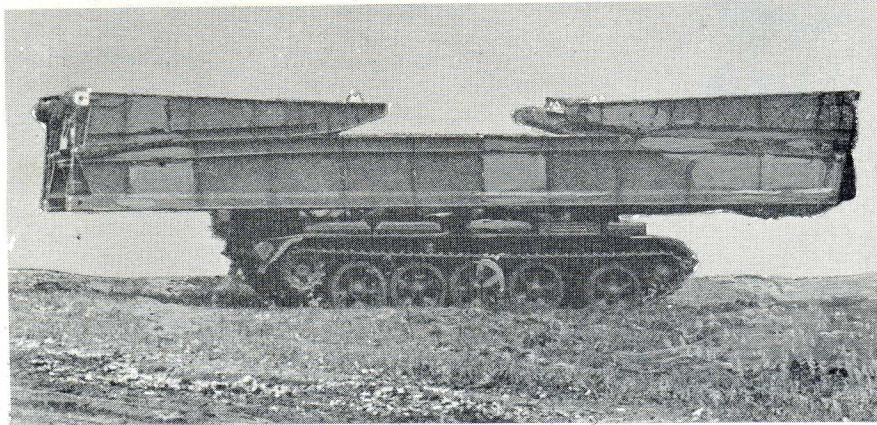
Both the serial number format and the manufacturing techniques, i.e. extensive use of machine parts versus stampings, indicate Chicom manufacture. It is well made despite its crude external appearance.



Exploded view of Pistol

4.

NEW... SOVIET



TANK-MOUNTED-BRIDGE

A new tank mounted bridge has been sighted in East Germany. This is thought to be the expected replacement for the MTU.

The tracked chassis is a T-55, and is apparently almost identical to the MTU carrier. The bridge consists of a pair of box girder central members and two end sections which fold back onto the central member. It is probable that the end sections are operated hydraulically.

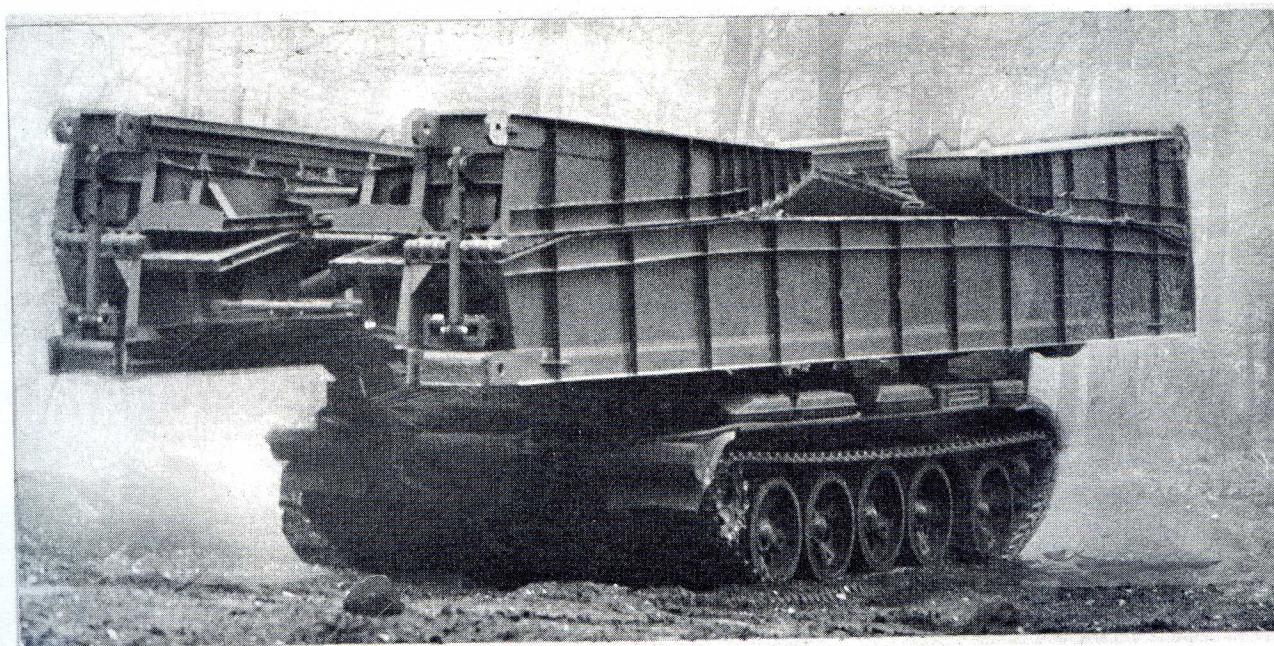
Provisional estimated dimensions for the bridge are as follows:

Length of central members	37.5 ft	11.43 m
End members	13.5 ft	4.11 m
Overall length of bridge when open	64.5 ft	19.66 m

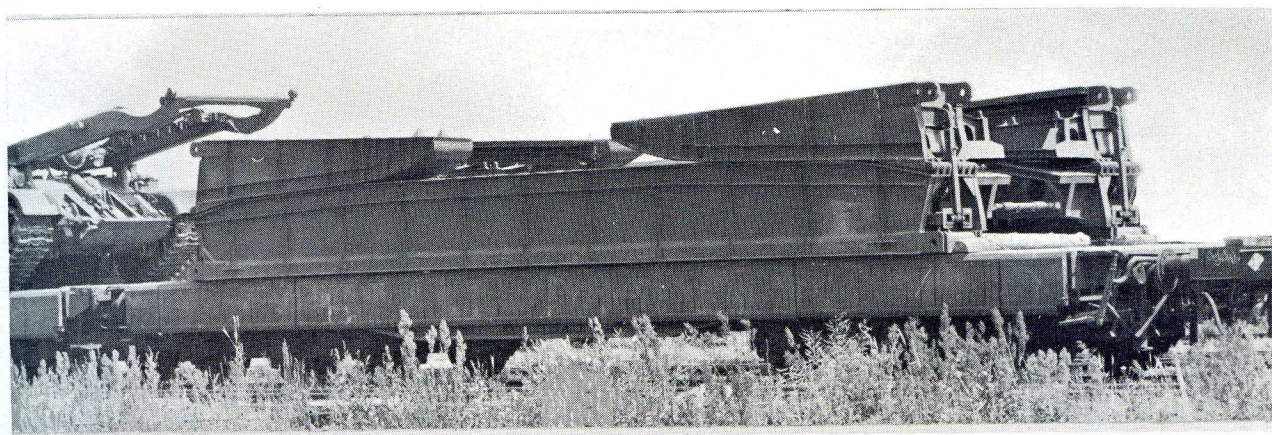
The estimated load class is approximately 60.

Once the end sections have been locked into position, it is probable that the launching method is similar to that of the MTU. The bridge is winched forward along the launching arms to a point of balance. The arms dip and the bridge is lowered onto the far bank. By reversing the chassis from under the bridge, the bridge is dropped onto the home bank.

The chief advantage of a flat launched bridge such as this, is that a low silhouette is preserved during the launch.



Ready for action



Tank and Bridge being transported by rail

5. New Soviet HF Radio Direction Finding System (FULL HOUSE) (CONFIDENTIAL)

In late 1961, a D/F antenna array, subsequently nicknamed SQUARE FOUR, was seen in the USSR some 5 km from the SOVIET R & D antenna proving ground at MYTISCHI. In the vicinity, though not at that time thought to be associated with it, was an 8-masted array reported as a FIX EIGHT. By early 1962 both arrays had disappeared from this area.

No further reports were received of SQUARE FOUR till 1967, when it suddenly appeared in East Germany at the SOVIET ECM installations at NORDHAUSEN and STAHNSDORF. This re-appearance some 6 years after its original sighting leads us to assume that it is now in service with ECM units of the Soviet Armed Forces.

From photographs obtained it can now be seen that SQUARE FOUR is part of a composite radio D/F system as shown in Fig. 1. It is also now evident that the 8-masted array is NOT a FIX EIGHT, shown at Fig. '2 for comparison, which comprises 8 centre-fed vertical dipoles, but a new antenna array comprising 8 bottom-fed loaded monopoles. This array has now been nicknamed TALL RODS.

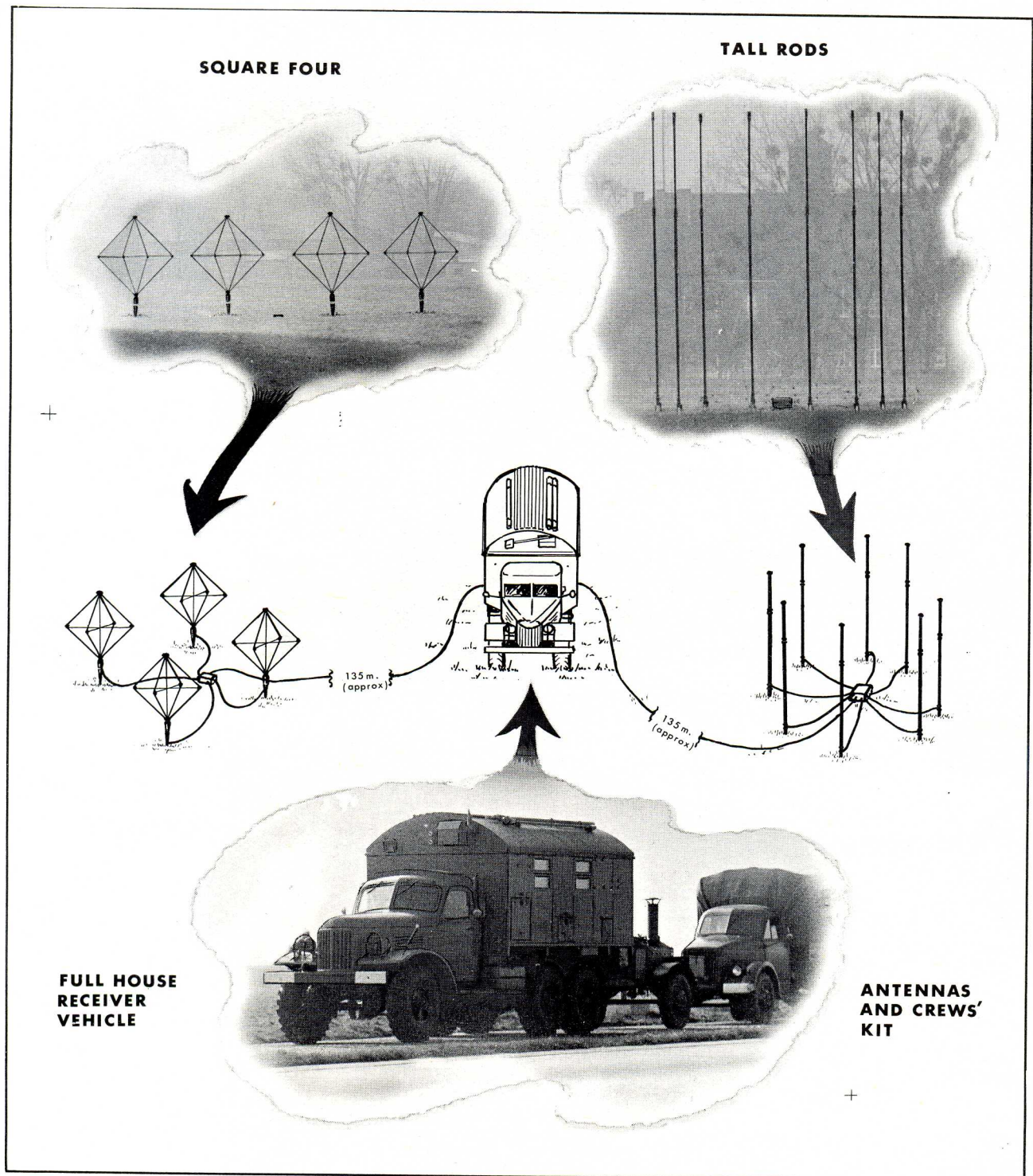


Fig. 1 - Composite Radio D/F System

The two arrays are about 270m apart and cables, from junction boxes at the centre of each, are led-in to either side of a ZIL-157 box-bodied receiver vehicle located mid-way between them. The complete system has been nicknamed FULL HOUSE.

The dimensions of the two arrays indicate that they cover the following frequency ranges:

SQUARE FOUR	approx	0.5 - 17 MHz
TALL RODS	approx	2 - 30 MHz

The estimated frequency range of TALL RODS is greater than that of FIX EIGHT (1.5 - 25 MHz) but its performance should have the same order of error ($\pm 2^\circ$). It will however take less time to erect, as it does not have the unwieldy system of supports for the central feeders on the roof of the vehicle (Fig. 2). Also the vehicle is not caged in by the masts, which under certain operational circumstances could prove an embarrassment to the crew of a FIX EIGHT.

D/F antennas of the TALL RODS or FIX EIGHT type suffer from the disadvantage that they can only provide accurate bearings on ground waves or long distance (over 300 km) low-angle-of-incidence sky waves. With high-angle-of-incidence sky waves which are used for HF communications over distances beyond ground wave range up to approximately 300 km, their average error is of the order of ± 10 - 12° . They are thus virtually useless for locating ground based HF radio stations in the Combat Zone in rear of Brigade HQ.



Fig2 FIX EIGHT

D/F antennas of the SQUARE FOUR type, on the other hand, while not only giving accurate and un-ambiguous bearings on ground waves, have the ability to perform equally well against high-angle-of-incidence sky waves. As only the lower half of the HF band produces such sky waves, there is no necessity for this antenna to have a wider frequency coverage than that given above.

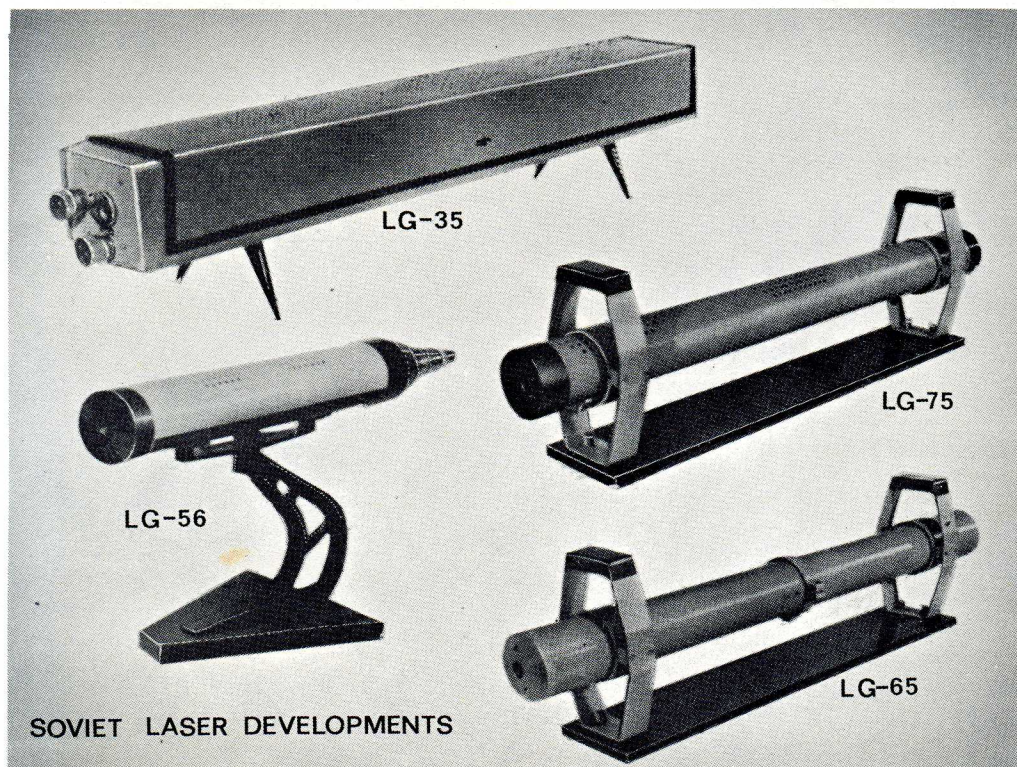
The SQUARE FOUR and TALL RODS are therefore complementary, and together with the associated ZIL-157 box-bodied receiver vehicle, form a composite trans-portable HF Radio D/F station capable of providing complete coverage of the NATO Armies HF communications, both in and in rear of the Combat Zone. This represents a significant improvement over the coverage previously provided by the FIX EIGHT (R-301) D/F Stations alone.

6. Soviet Laser Developments

In a Yugoslav military technical journal in June of 1967 the following statement was made: "The new Soviet T-62 Tanks are also equipped with laser rangefinders". This statement appeared in an article entitled "Modern Means of Artillery Survey". The author is a Yugoslav Colonel in the Geodetic Service. Admittedly this is hardly conclusive proof that the Soviet are now employing lasers on their T-62 tanks. However, it is another indication that laser devices or quantum mechanical generators in general are leaving the realm of science fiction and establishing their place on future battlefields.

Activity in this area is not restricted to the USSR alone. Within recent months the efforts of Sweden, United States and West Germany, in this field, have been reported.

All specific information collected to date on Warsaw Pact laser development has been of a non-military nature. However, it must be assumed that most of the reportedly civilian laser devices displayed by the Soviets have potential military application.



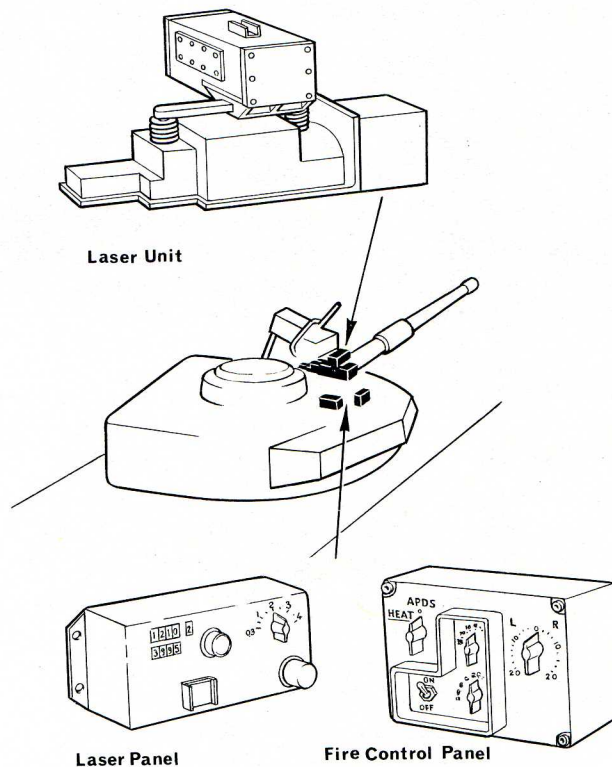
The Soviets announced that they had produced their first operational laser in January 1962. It was the Soviet scientists, N.G. Basor and A.M. Prokhorov who shared with the American C. Townes the Nobel Prize for their efforts in laser research. Typical laser devices available in the USSR today are illustrated. The LG-35 is a continuous gas laser used in communication research. It is also used on controlling the surface finish of optical components. The LG-56 is also a continuous gas laser, but it has the function of precision optical range finding.

This device can operate reliably in any position, in a wide range of temperature and humidity. It is also sturdily built to withstand jolts and shocks received during transport. The LG-65 is a research device. Typical of the fields where it could be employed is Holography (three dimensional photography). The LG-75 is used in establishing centre lines for such civil engineering projects (Soviet Sapper projects?) as roads, airfield runways and tunnels.

Technical Characteristics of Soviet Lasers

	LG-35	LG-56	LG-65	LG-75
Wavelength (micron)	(estimated) .63 - 1.15	.63	1.15	.63
Tube length (mm) (in)	1250 (49.2)	250 (9.8)	950 (37.4)	950 (37.4)
Power Consumption (W)	500	66	550	500
Weight (kg) (lb)	47 (103.6)	1.2 (2.6)	24 (52.9)	10 (22)
Service life (hr *)	500	500	300	500

* Service life is based on life of active element which can be easily replaced.



A typical layout for a laser fire control system is shown above. It is provided as an aid to collectors in the field and for the general information of our other readers.

7. Soviet Refrigerated Truck for Possible Biological Warfare Use



Soviet leaders are on record as saying that they anticipate the use of biological weapons in a future war. Recent collateral indicates increasing interest in BW training in the Soviet Bloc countries.

The above vehicle is a refrigerated truck which is used for transporting "biopreparations" and vaccines for animal use. We believe that similar vehicles may possibly be used to carry BW material, in which case the crew would probably wear protective clothing.

We would be interested in sightings of such vehicles on exercises, particularly if seen with SCUD or FROG units.

(RESTRICTED)

8. Soviet Army Equipment Quiz

HOW GOOD IS YOUR GENERAL KNOWLEDGE OF THE SOVIET ARMY AND ITS EQUIPMENT?

This is the first of a series of recognition quizzes on the Soviet army which are being prepared by the School of Military Intelligence.

It is hoped that they will be both entertaining and of value for training purposes. Each one will be produced as a separate unit within a 'Review' so that it can be cut out without defacing the remaining articles. When extracted the classification of these pages will be RESTRICTED.

You should first identify and give the nomenclature of the equipments illustrated and then consider in which Soviet units or formations you would expect them to be used. The answers will be found on page 20.

Grading Guide

Six correct answers - Excellent; or you cheated

Five correct answers - Very good

Four correct answers - Good

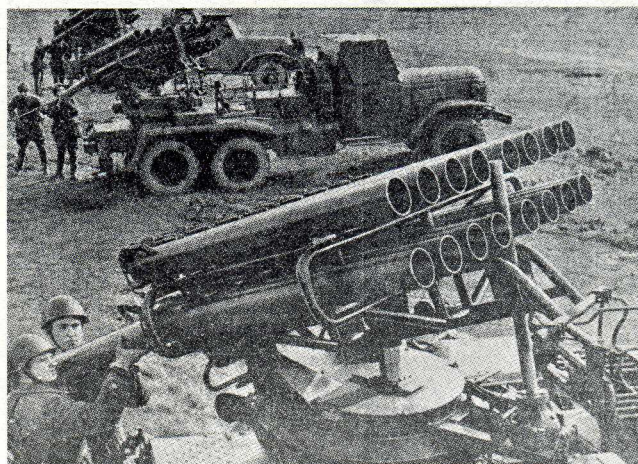
Three correct answers - Fair

Below three correct answers - Poor; try next issue

(RESTRICTED)



No. 1 Name the weapon in the foreground and say where in the Soviet battalion organisation it would be employed.

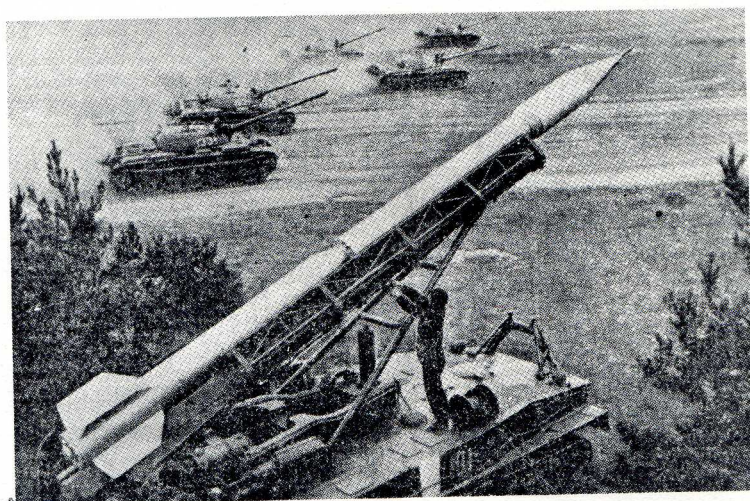


No. 2 Identify this equipment. In which Soviet unit or formation would you expect to find it?

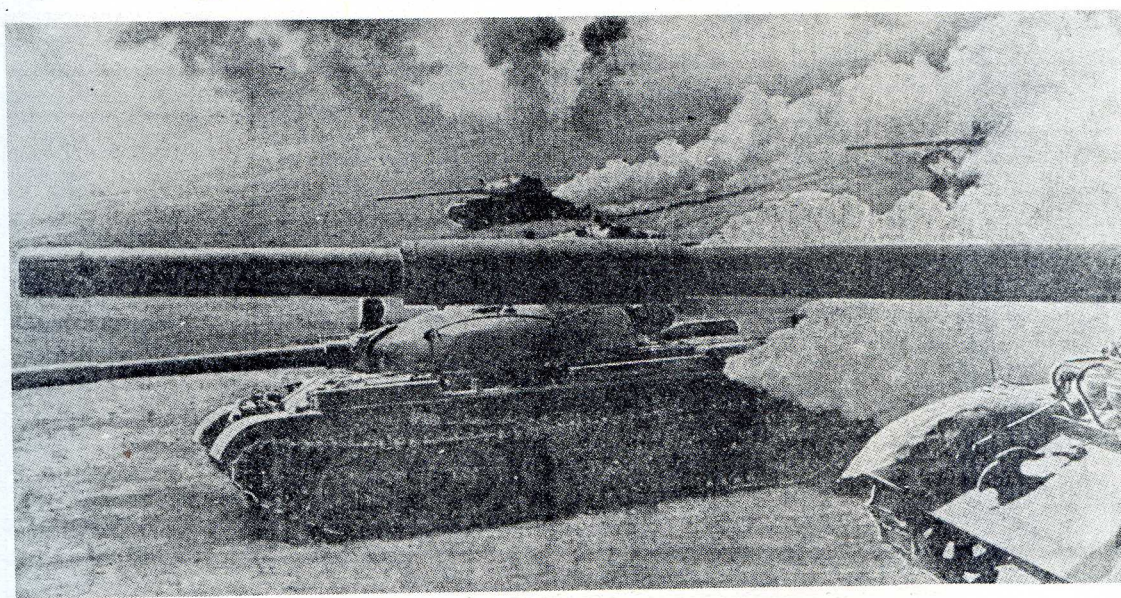


No. 3 What is going on in this picture? Washing down? - Decontamination? - Refuelling? - Respraying?

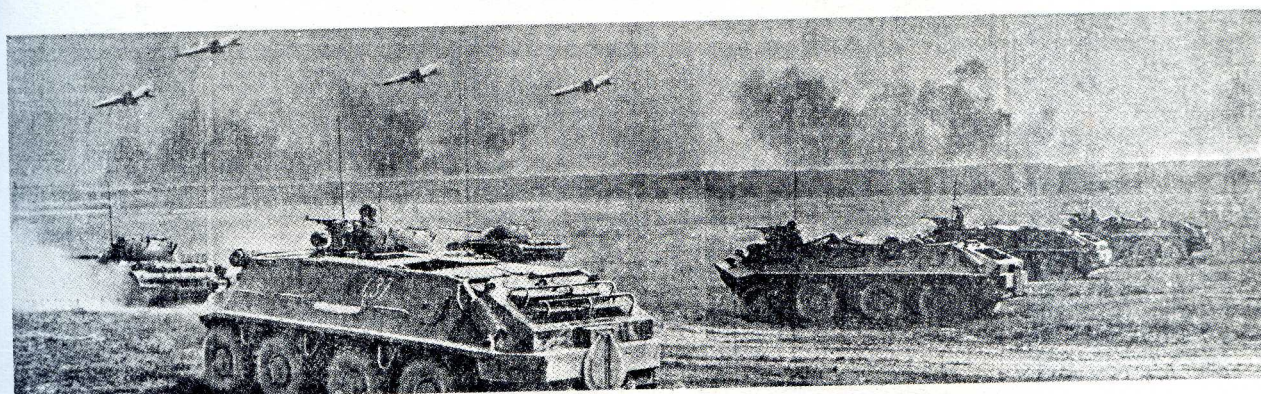
(RESTRICTED)



No. 4 Name both the tanks and the missile. Would you expect to see this type of missile as close to the Forward Edge of the Battle Area as this picture suggests?



No. 5 Identify the tanks. What method is being employed to make smoke?

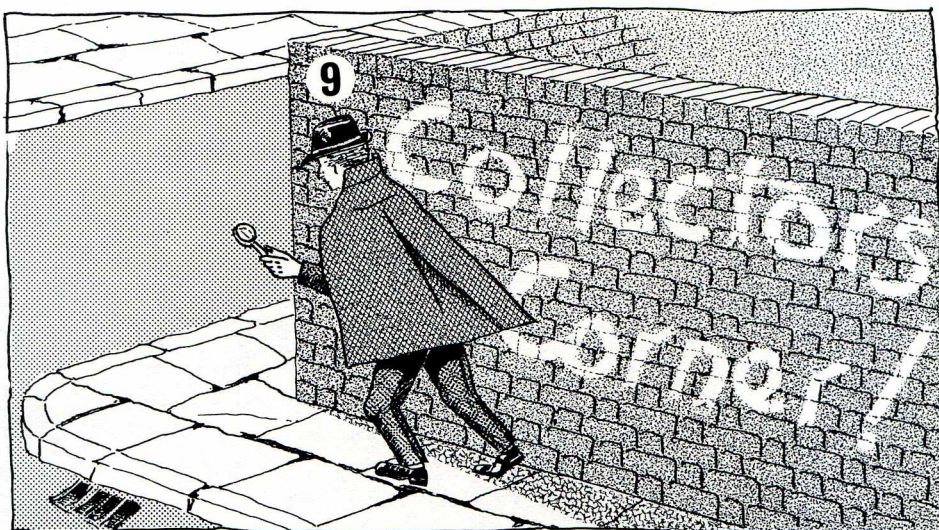


No. 6 Name these APCs. How many would be found in each Soviet Motor Rifle Company?

(RESTRICTED)

ANSWERS

1. RPK 7.62-mm Light Machine Gun Kalashnikov. The current Soviet section LMG.
2. The Soviet BM-14-16 140-mm Rocket Launcher (16 Rds) which is found in the Rocket Launcher Battalion of the Motor Rifle Division.
3. Refuelling.
4. T-54/55s with FROG 3 in the foreground. Artillery, including free flight rockets, are held well forward. For allocation and deployment of artillery in the attack see "Tactics of the Soviet Army", WO Code No. 9939, chapter four.
5. T-62. The smoke is produced by injecting atomised diesel fuel into the engine exhaust system which generates a dense cloud of smoke from the exhaust pipe.
6. BTR-60PK : Six per Company.

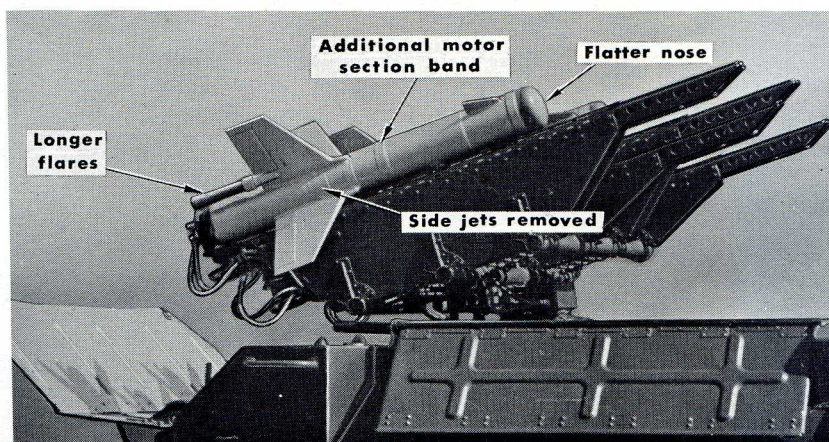


SWATTER 2 Modified Anti-Tank Missile

The modified SWATTER '2 has now been shown on the November 1967 and May 1968 Moscow Parades.

The modifications show that the SWATTER system is likely to remain in service for a further period.

The main modifications are:



The two external cable race ways on the left side of the missile (not visible in this photograph) are now the same length.

The overall length of the missile is unchanged.

Information Required

1. Reports of sightings of SWATTER 2 are required to assess the extent to which SWATTER 1 is being replaced.
2. Confirmatory reports on improved performance are required. These are additional to the already published requirements for SWATTER 1.

New Soviet HF Radio Direction Finding System FULL HOUSE

COLLECTION REQUIREMENTS

1. Soviet Designation.
2. Reports of sightings elsewhere, with photographs of the antennas and the associated vehicle.
3. Full technical details of the Receiver and all ancillary equipment.

Soviet 100-mm Anti-Tank Gun M1965(?)

Changes have been noted in the 100-mm Field Gun M1955 which indicate that either an improved version has been produced or a new gun of similar calibre has been developed. This gun has been designated the Soviet 100-mm Anti-Tank Gun M1965(?).

The changes have been noted on guns in the EAST BERLIN parades of 1967 but first appeared in April 1965 towed by an ATP.

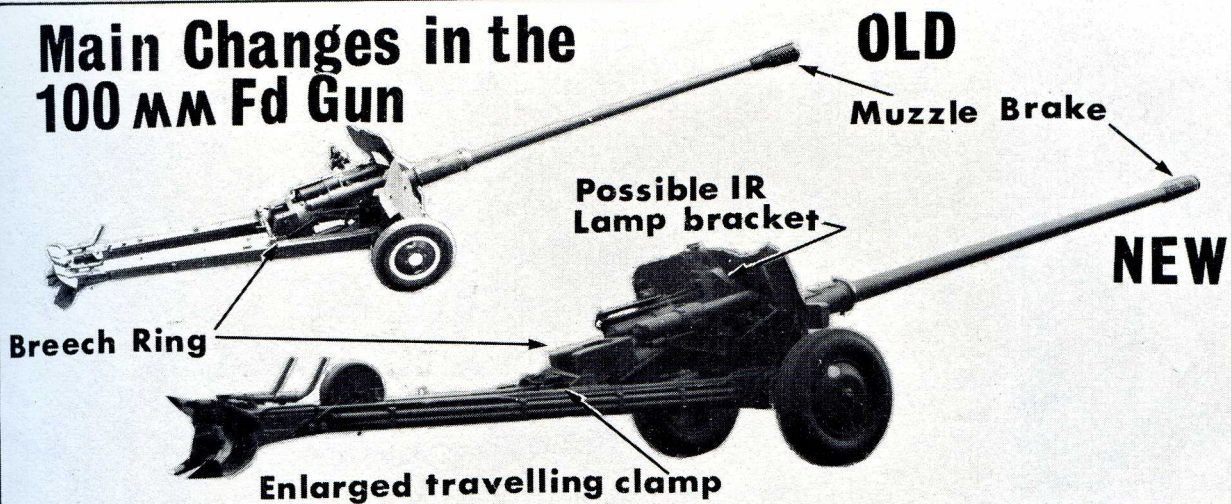
In November 1967 the photograph below appeared in a Yugoslav newspaper. The winding around the barrel could indicate the use of a thermal blanket.

The new muzzle brake is probably integral with the barrel and this with the changed breech ring indicates a new ordnance possibly using a larger charge. The changes could also indicate a further shift of emphasis for this dual purpose gun towards the direct fire anti-tank role.



100-mm Anti-Tank Gun M1965(?)

Main Changes in the 100 mm Fd Gun



Changes	M 1955	M 1965(?)
Muzzle Brake		
Breech Ring & Travelling Clamp		
Possible IR Lamp Bracket		

We need to know more about the changes in this gun and in particular we need information about:

- the exact calibre
- whether the barrel is rifled or smooth
- details of the ammunition
- the night fighting arrangements

CORRIGENDUM

ARMY TECHNICAL INTELLIGENCE REVIEW No. 89 - PART 2

GAINFUL

The two illustrations of GAINFUL on page seven of this issue became transposed during printing. The missiles point towards the rear of the tracked transporter/launcher.

10 - ARMY TECHNICAL INTELLIGENCE REVIEW

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AAICV M1967(?)	88(2)/20
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ARTILLERY

FIELD AND ANTI-TANK

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100-mm Anti-Tank Gun M1965(?)	91/cc22

MEDIUM AND HEAVY

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ZSU-57-2 57-mm Twin SP AA Gun	90/7

ROCKET

122-mm RL (40 Rds) BM-21 on URAL-375	87(1)/11; 88(1)/14; 89(2)/10m
BM-13 132-mm RL (16 Rds)	87(1)/10
BM-14-16 140-mm RL (16 Rds)	87(1)/11
140-mm RL (16 Rds) Towed M1965(?)	87(1)/11
BM-24 240-mm RL (12 Rds)	88(1)/14

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MOTOR TRANSPORT

GAZ-63	88(2)/14
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KrAZ-214	88(2)/9; 90/20
KrAZ-219	88(2)/8
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ChMZAP 5203V Transporter	88(2)/8
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ChMZAP 5212 Transporter	88(2)/9
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Czech TATRA-111	87(1)/8
Czech TATRA-141	87(1)/8
Czech TATRA-138	87(1)/9
Czech TATRA-805	87(1)/9
Czech TATRA-813	87(1)/9
Austrian STEYR-PUCH 700AP 'HAFLINGER'	88(1)/20
Austrian STEYR-PUCH 710 'PINZGAUER'	88(1)/21
Austrian HA-2-75 'HUSAR' 4 x 4	88(1)/21
Austrian STEYR-680M	88(1)/22
K-61	89(1)/12
PTS	89(1)/12

INFANTRY WEAPONS

Pistols

7.62-mm Pistol TOKAREV Model 1933 (TT-33)	88(2)D/32
9-mm Pistol MAKAROV (PM)	88(2)D/33
9-mm Pistol STECHKIN (APS)	88(2)D/34
Hungarian 7.62-mm Pistol M-48	88(2)D/32
Czech 7.62-mm Pistol Model 52	88(2)D/35
Czech 7.65-mm Machine Pistol SKORPION M-61	88(2)D/36
East German 9-mm Pistol M	88(2)D/33
CCA 7.62-mm Pistol Type 51/54	88(2)D/32
CCA Pistol Type 64	91/9

Sub-Machine Guns

7.62-mm Sub-machine Gun SHPAGIN PPSH M1941	88(2)D/38
7.62-mm Sub-machine Gun SUDAYEV (PPS M1943)	88(2)D/39
Hungarian 7.62-mm Sub-machine Gun M48	88(2)D/38
Czech 9-mm Sub-machine Gun Models '23 and '25	88(2)D/40
Czech 7.62-mm Sub-machine Gun Models '24 and '26	88(2)D/41
CCA 7.62-mm Sub-machine Gun Type 50	88(2)D/38
CCA 7.62-mm Sub-machine Gun Type 54	88(2)D/39

INFANTRY WEAPONS (continued)

Carbines/Rifles and Assault Rifles

7.62-mm Rifle MOSSIN-NAGANT M1891/30	88(2)D/44
7.62-mm Semi-automatic Carbine SIMONOV (SKS)	88(2)D/45
7.62-mm Semi-automatic Sniper Rifle DRAGUNOV (SVD)	87(2)/13, cc; 88(2)D/46
7.62-mm Assault Rifle KALASHNIKOV (AK-47)	88(2)D/48
7.62-mm Assault Rifle KALASHNIKOV (Modified) (AKM)	88(2)D/49
Hungarian 7.62-mm Rifle M48	88(2)D/44
Hungarian 7.62-mm Assault Rifle AK	87(1)/12; 88(2)D/48
Hungarian 7.62-mm Assault Rifle AKM	88(2)D/50
Czech 7.62-mm Semi-automatic Rifle Models 52 and 52/57	88(2)D/47
Czech 7.62-mm Assault Rifle M-58p	88(2)D/51
Czech 7.62-mm Assault Rifle M-58v	88(2)D/51
East German 7.62-mm Carbine S	88(2)D/45
East German 7.62-mm Assault Rifle MPiK	88(2)D/48
East German 7.62-mm Assault Rifle MPiKmS	88(2)D/48
East German 7.62-mm Assault Rifle MPiKM	88(2)D/49
Polish 7.62-mm Assault Rifle PMK	88(2)D/48
CCA 7.62-mm Carbine Type 56	88(2)D/45
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Machine Guns

7.62-mm Light Machine Gun DEGTAREV (DP and DPM)	88(2)D/55
7.62-mm Light Machine Gun DEGTAREV (DT and DTM)	88(2)D/56
7.62-mm Light Machine Gun DEGTAREV (RPD)	88(2)D/57
7.62-mm Light Machine Gun (RPK)	88(2)D/58
7.62-mm Company Machine Gun (RP-46)	88(2)D/60
7.62-mm General Purpose Machine Gun PK/PKS/PKT	88(2)D/61; 90/4
7.62-mm Heavy Machine Gun GORYUNOV (SG-43) and (SGM)	88(2)D/62
Czech 7.62-mm Light Machine Gun M-52/57	88(2)D/59
Czech 7.62-mm General Purpose Machine Gun M-59, M-59L, M-59N	88(2)D/64
CCA 7.62-mm Light Machine Gun Type 56	88(2)D/57
CCA 7.62-mm Company Machine Gun Type 58	88(2)D/60
CCA 7.62-mm Heavy Machine Gun Types 53 and 57	88(2)D/62

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Anti-Tank Hand Grenade RPG-6	88(2)D/76
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Smoke Hand Grenade RGD-1	88(2)D/78
Smoke Hand Grenade RGD-2	88(2)D/79
Czech Offensive Hand Grenade RG-4	88(2)D/72
East German Smoke Hand Grenade S-32	88(2)D/80
Polish Anti-Personnel Rifle Grenade F-1/N60	88(2)D/81
Polish HEAT Rifle Grenade PGN-60	88(2)D/82
CCA Defensive Hand Grenade Type 1	88(2)D/68
CCA Defensive Hand Grenade Type ?	88(2)D/69
CCA Defensive Hand Grenade Type 42	88(2)D/70
CCA Defensive Stick Type Serrated Oval Head	
Hand Grenade Type?	88(2)D/73
CCA Anti-Tank Hand Grenade Type ?	88(2)D/76

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Anti-Tank Grenade Launcher RPG-7	88(2)D/86; 89(2)/3
82-mm Recoilless Anti-Tank Gun B-10	88(2)D/90
107-mm Recoilless Anti-Tank Gun B-11	88(2)D/91
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Czech 82-mm Recoilless Anti-Tank Gun TARASNICE	
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Czech 82-mm Recoilless Anti-Tank Gun M-59 and	
M-59A	88(2)D/92
CCA Anti-Tank Grenade Launcher Type 56	88(2)D/85; 89(2)/3
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88(2)D/65, 96 to 100

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DP 23A	89(2)D/24
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Czech T 54	89(2)D/35
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KR-7 Lifebelt	88(2)/3
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Nomenclature of SOVIET BLOC and CHICOM Weapons
and Military Equipments

Revised to: MAY 1968

INTRODUCTION

1. The attached list cancels that of Soviet Bloc Weapons and Equipment published in the Army Technical Intelligence Review No. 87 of October 1967.
2. For the first time military weapons and equipment manufactured in Communist China have been included but the list is far from complete. It has been impossible to produce details for all Communist Chinese equipment (eg MT and Engineer Equipment) and unless stated otherwise it is of Soviet Bloc origin.
3. The alterations have been agreed with the USA, CANADA and AUSTRALIA in the case of Soviet Bloc equipment but this does not apply in every case with Chicom equipment. It will form the basis for discussion at the 20th Army Technical Intelligence Conference.
4. Weapons and equipments that contain a question mark in their present nomenclature will have the question mark deleted when appearing in RESTRICTED publications.
5. M1955(?) etc implies that the equipment was first seen by Western observers in 1955. As and when correct model numbers are known, DI Tech Int(A) will inform all concerned.
6. For collectors reporting intelligence in bulk by signal, the short nomenclature comprising letters and digits usually to be found at the commencement of the full nomenclature, eg BMK-90; will normally suffice as an equipment identification in a signal.
7. In the case of Soviet Bloc weapons and equipment Stanag 2097 is implemented, where practicable, for interim titles except for MISSILES, RADAR and COMMUNICATIONS equipment.
8. The security classification of the naming of each equipment is shown

(s) for SECRET

(c) for CONFIDENTIAL

Those not so marked are UNCLASSIFIED

This classification is only of the nomenclature, and does not necessarily include role and description.

SECRET
AUS/CAN/UK/US EYES ONLY

Nomenclature List
May 1968

Additional Equipments

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MAY 1968

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NOMENCLATURE LIST
MAY 1968

TITLE	DESCRIPTION/INTERIM TITLE and CLASSIFICATION
1. INFANTRY WEAPONS	
a. Pistols	
USSR	
TT-33	7.62-mm Pistol Tokarev M1933
PM	9-mm Pistol Makarov
APS	9-mm Machine Pistol Stechkin
Hungary	
M-48	7.62-mm Automatic Pistol (Copy of Soviet TT-33)
M-48	7.65-mm Automatic Pistol (Copy of Walther PP)
Czechoslovakia	
M-50	7.65-mm Automatic Pistol (police/security use)
M-52	7.62-mm Automatic Pistol
M-61	7.65-mm Machine Pistol (Skorpion)
East Germany	
Pistol M	9-mm Automatic Pistol (copy of Soviet Makarov PM)
Poland	
M-64	9-mm Pistol (P-64)
M-63	9-mm Machine Pistol (Mini)
Communist China	
Type 51	7.62-mm Pistol (Copy of Soviet TT-33)
Type 54 (M20)	7.62-mm Pistol (Copy of Soviet TT-33)
Type 26 ?	26-mm Signal Flare Pistol
Type ?	27-mm Signal Flare Pistol
b. Sub-Machine Guns	
USSR	
PPSh-41	7.62-mm Sub-machine gun Shpagin M1941
PPS-43	7.62-mm Sub-machine gun Sudayev M1943
Hungary	
M-48	7.62-mm Sub-machine gun (copy of Soviet PPSh-41)
Czechoslovakia	
M-24	7.62-mm Sub-machine gun (Fixed Stock)
M-26	7.62-mm Sub-machine gun (Folding Stock)
M-23	9-mm Sub-machine gun (Fixed Stock)
M-25	9-mm Sub-machine gun (Folding Stock)
Communist China	
Type 50	7.62-mm Sub-machine gun (Copy of Soviet PPSh-41)
Type 54	7.62-mm Sub-machine gun (Copy of Soviet PPS-43)
Type 36	11-mm Sub-machine gun (Copy of US M3A1)
Type ?	11-mm Sub-machine gun (Copy of US "Thompson")

TITLE	DESCRIPTION/INTERIM TITLE and CLASSIFICATION
INFANTRY WEAPONS (continued)	
c. Assault Rifles	
USSR	
AK-47	7.62-mm Assault Rifle Kalashnikov
AKM	7.62-mm Assault Rifle Kalashnikov (Modified)
Hungary	
AK	7.62-mm Assault Rifle (Copy of Soviet AK)
AKM	7.62-mm Assault Rifle (Variant of Soviet AKM)
Czechoslovakia	
M-58P	7.62-mm Assault Rifle (Fixed Stock)
M-58V	7.62-mm Assault Rifle (Folding Stock)
East Germany	
MPiK	7.62-mm Assault Rifle (Copy of Soviet AK - Fixed Stock)
MPiKMS	7.62-mm Assault Rifle (Copy of Soviet AK - Folding Stock)
MPiKM	7.62-mm Assault Rifle (Copy of Soviet AKM)
Poland	
PMK	7.62-mm Assault Rifle (Copy of Soviet AK)
PMK-DGN	7.62-mm Assault Rifle with Grenade Launcher Attachment
Communist China	
Type 56 (M22)	7.62-mm Assault Rifle (Copy of Soviet AK-47)
d. Carbines/Rifles	
USSR	
-	7.62-mm Rifle Mossin Nagant M1891/1930
-	7.62-mm Carbine Mossin Nagant M1938
-	7.62-mm Carbine Mossin Nagant M1944
SVT	7.62-mm Semi-automatic Rifle Tokarev M1940
SKS	7.62-mm Semi-automatic Carbine Simonov
SVD	7.62-mm Semi-automatic Sniper Rifle Dragunov
Hungary	
M-48	7.62-mm Rifle (Copy of Soviet M1891/30)
Czechoslovakia	
M-54	7.62-mm Sniper Rifle
M-52 and M-52/57	7.62-mm Semi-Automatic Rifle
East Germany	
Carbine S	7.62-mm Carbine (Copy of Soviet SKS)
Yugoslavia	
M59	7.62-mm Semi-automatic Carbine (Copy of Soviet SKS)
M59/66	7.62-mm Semi-automatic Carbine M59 with Grenade Launcher Attachment
Communist China	
Type 53	7.62-mm Carbine (Copy of Soviet M1944)
Type 56 (M21)	7.62-mm Carbine (Copy of Soviet SKS)

TITLE	DESCRIPTION/INTERIM TITLE and CLASSIFICATION
INFANTRY WEAPONS (continued)	
e. Machine Guns	
USSR	
DP	7.62-mm Light Machine Gun Degtyarev
DT	7.62-mm Tank Machine Gun Degtyarev
DPM	7.62-mm Light Machine Gun Degtyarev (Modified)
DTM	7.62-mm Tank Machine Gun Degtyarev (Modified)
RPD	7.62-mm Light Machine Gun Degtyarev
RPK	7.62-mm Light Machine Gun Kalashnikov
RP-46	7.62-mm Company Machine Gun
PK/PKS	7.62-mm General Purpose Machine Gun
	7.62-mm Heavy Machine Gun Maxim M1910
SG-43	7.62-mm Heavy Machine Gun Goryunov M1943
SGM	7.62-mm Heavy Machine Gun Goryunov (Modified)
SGMT	7.62-mm Tank Machine Gun Goryunov
SGMB	7.62-mm Vehicle Machine Gun Goryunov
DShK	12.7-mm Heavy Machine Gun Degtyarev Shpagin M1938
	12.7-mm Heavy Machine Gun M1938/46
ZPU-1	14.5-mm Anti-aircraft Heavy Machine Gun (Single)
ZPU-2	14.5-mm Anti-aircraft Heavy Machine Gun (Twin)
ZPU-4	14.5-mm Anti-aircraft Heavy Machine Gun (Quadruple)
KPV	14.5-mm Anti-aircraft Heavy Machine Gun (Gun only)
Czechoslovakia	
M-52 & M-52/57	7.62-mm Light Machine Gun
M-59	7.62-mm General Purpose Machine Gun (Heavy Barrel/Tripod)
M-59L	7.62-mm General Purpose Machine Gun (Light Barrel/Bipod)
Communist China	
Type 53	7.62-mm Light Machine Gun (copy of Soviet DPM)
Type 56 (M23)	7.62-mm Light Machine Gun (copy of Soviet RPD)
Type 26	7.92-mm Light Machine Gun (copy of Czech ZB26)
Type 58	7.62-mm Light Machine Gun (copy of Soviet RP-46)
Type 53	7.62-mm Heavy Machine Gun (copy of Soviet SG-43)
Type 57	7.62-mm Heavy Machine Gun (copy of Soviet SGM)
Type 24	7.92-mm Heavy Machine Gun (copy of German M-08)
Type 54	12.7-mm Heavy Machine Gun (copy of Soviet DShK)
-	14.5-mm Anti-aircraft Heavy Machine Gun (Twin) (copy of Soviet ZPU-2)
-	14.5-mm Anti-aircraft Heavy Machine Gun (Quad- ruple) (copy of Soviet ZPU-4)

f. Mortars

Soviet Bloc

	82-mm Mortar M1937
	82-mm Mortar M1941
	82-mm Mortar M1943
	107-mm Mountain Mortar M1938
	107-mm Mortar M-107
	120-mm Mortar M1938
	160-mm Mortar M1943
M-160	160-mm Mortar
M-240	240-mm Mortar

Communist China

Type 31	60-mm Mortar (copy of US M-2)
Type 53	82-mm Mortar (copy of Soviet M1937)
Type 53	120-mm Mortar (copy of Soviet M1943)
-	160-mm Mortar (copy of Soviet M1943)

g. Infantry Anti-tank Weapons

USSR

RPG-2	Anti-tank Grenade Launcher
RPG-7	Anti-tank Grenade Launcher
SPG-82	82-mm Infantry Anti-tank Rocket Launcher
B-10	82-mm Recoilless Gun
B-11	107-mm Recoilless Gun

Czechoslovakia

P-27	Anti-tank Grenade Launcher, 45-mm, (Panzerovka)
T-21	Recoilless Gun, 82-mm (Tarasnice)
M-59	Recoilless Gun, 82-mm
M-59A	Recoilless Gun, 82-mm

Communist China

Type 56	40-mm Anti-tank Grenade Launcher (copy of Soviet RPG-2)
Type 36	57-mm Recoilless Rifle (copy of US M18A1)
Type 52	75-mm Recoilless Rifle (copy of US M20)
Type 56	75-mm Recoilless Rifle (Modified Type 52)
Type 51	90-mm Anti-tank Rocket Launcher (copy of US 3.5 in RL)

h. Hand Grenades

USSR

F-1	Defensive Hand Grenade
RG-42	Offensive/Defensive Hand Grenade
RGD-5	Offensive/Defensive Hand Grenade
RPG-6	Anti-tank Hand Grenade
RPG-40	Anti-tank Hand Grenade
RPG-43	Anti-tank Hand Grenade
RKG-3	Anti-tank Hand Grenade
RKG-3M	Anti-tank Hand Grenade (Modified)
RKG-3T	Anti-tank Hand Grenade (T)

Czechoslovakia

M-42	Hand Grenade (Stick)
RG-4	Hand Grenade
RG-34	Hand Grenade

Communist China

Type 42	Defensive Hand Grenade (copy of Soviet RG-42)
Type 1 (M33)	Defensive Hand Grenade (copy of Soviet F-1)
Type ? (M32)	Defensive Hand Grenade (copy of Soviet RGD-5)
Type 3	Anti-tank Hand Grenade (copy of Soviet RKG-3)
Type 3 (copper)	Anti-tank Hand Grenade (copy of Soviet RKG-3M)
Type 50	Anti-tank Grenade (copy of Soviet PG2 for Type 56 Grenade Launcher)

j. Rifle Grenades

Poland

PGN-60	Anti-tank Rifle Grenade
Fl-N60	Anti-personnel Rifle Grenade

2. ROCKET LAUNCHERS

Soviet Bloc

BM-21	122-mm Rocket Launcher (40 Rounds) On URAL-375
M-51	130-mm Rocket Launcher (32 Rounds) (CZECH)
BM-13	132-mm Rocket Launcher (16 Rounds)
BM-14-16	140-mm Rocket Launcher (16 Rounds)
BM-14-17	140-mm Rocket Launcher (17 Rounds) on GAZ-63
WP-8	140-mm Rocket Launcher (8 Rounds) towed (POLISH)
	140-mm Rocket Launcher (16 Rounds) towed M1965(?)
BMD-20	200-mm Rocket Launcher (4 Rounds)
BM-24	240-mm Rocket Launcher (12 Rounds)
BM-24 (AT-S)	240-mm Rocket Launcher (12 Rounds) on AT-S
BM-25	250-mm Rocket Launcher (6 Rounds) on KrAZ-214
BM-31	300-mm Rocket Launcher (12 Rounds)
	FROG 1 on JS Chassis
	FROG 2
	FROG 3 on Modified PT-76 Chassis
	FROG 4
	FROG 5
	FROG 6 on Modified ZIL-157(c)
	FROG 7 on ZIL-135 type chassis

Communist China

132-mm Rocket Launcher (16 Rounds) (copy of Soviet BM-13)
140-mm Rocket Launcher (copy of Soviet BM-14)

3. FIELD BRANCH ARTILLERY

a. Towed

Soviet Bloc

	45-mm Anti-tank Gun M1942
	57-mm Anti-tank Gun M1943
	76-mm Mtn Gun How M1938
	76-mm Field Gun M1942
D-44	85-mm Field Gun
M-52	85-mm Field Gun (CZECH)
M-53	100-mm Field Gun (CZECH)
	100-mm Field Gun M1944
	100-mm Field Gun M1955
	122-mm Field Gun M1931/37
D-74	122-mm Field Gun

FIELD BRANCH ARTILLERY - Soviet Bloc (continued)

M-30	122-mm Howitzer M1938
D-30	122-mm Howitzer
M-46	130-mm Field Gun
	152-mm Gun Howitzer M1937
	152-mm Gun M1935
	203-mm Gun Howitzer M1955
	210-mm Gun M1939
D-1	152-mm Howitzer M1943
D-20	152-mm Gun Howitzer
	203-mm Howitzer M1931
	305-mm Howitzer M1940
	100-mm Anti-tank Gun M1965(?)
Communist China	
Type 55	57-mm Anti-tank Gun (copy of Soviet M1943)
Type 54	76-mm Field Gun (copy of Soviet M1942)
-	85-mm Field Gun (copy of Soviet D-44)
-	100-mm Field Gun (copy of Soviet M1944)
-	122-mm Howitzer (copy of Soviet M1938)
-	152-mm Howitzer (copy of Soviet D-1)

**b. Self-Propelled
Soviet Bloc**

SD-44	57-mm Aux. P. Anti-tank Gun
	85-mm Aux. P. Anti-tank Gun
	310-mm SP Gun
	420-mm SP Mortar

4. AA ARTILLERY

**a. Towed
Soviet Bloc**

ZU-23	Twin 23-mm AA Gun
M-53	Twin 30-mm AA Gun (CZECH)
	37-mm AA Gun M1939
S-60	57-mm AA Gun
	76-mm AA Gun M1938
KS-12	85-mm AA Gun
KS-18	85-mm AA Gun
KS-19	100-mm AA Gun
KS-30	130-mm AA Gun
Communist China	
Type 55	37-mm AA Gun (copy of Soviet M1939)
	57-mm AA Gun (copy of Soviet S-60)

**b. Self-Propelled
Soviet Bloc**

ZSU-23-4	Quad 23-mm SP	AA Gun M1965(?)
M53/59	Twin 30-mm SP	AA Gun M53/59 on Armoured PRAGA V3S (CZECH)
ZSU-57-2	Twin 57-mm SP	AA Gun

5. AFV

a. Tracked AFVs

(1) Tanks

PT-76	Amphibious Tank
T-34/85	Medium Tank
T-44	Medium Tank
T-54 (Early)	Medium Tank
T-54	Medium Tank
T-54 (M)	Medium Tank
T-54 A	Medium Tank
T-54 A (M)	Medium Tank
T-54 B	Medium Tank
T-54 (X)	Medium Tank
T-55	Medium Tank
T-55 (2)	Medium Tank
T-62	Medium Tank
JS-2	Heavy Tank
JS-3	Heavy Tank
T-10	Heavy Tank
T-10 M	Heavy Tank

(2) Assault Guns

ASU-57	Airborne Assault Gun
SU-76	Assault Gun
SU-85	Assault Gun
ASU-85	Airborne Assault Gun
SU-100	Assault Gun
JSU-122	Assault Gun
JSU-122A	Assault Gun
JSU-152	Heavy Assault Gun
SU-100(?)	Assault Gun M1968

(3) APCs

BTR-50P	Amphibious APC
BTR-50PK	Amphibious APC with overhead cover
BTR-50PU	Amphibious APC Command Vehicle
AAICV	Amphibious Armoured Infantry Combat Vehicle M1967(?)

b. Wheeled AFVs

BA-64	Armoured Car
BRDM	Amphibious Armoured Reconnaissance Vehicle
BRDM(2)	Turretted Amphibious Armoured Reconnaissance Vehicle
BTR-40	4 x 4 APC
BTR-152	6 x 6 APC
BTR-152K	6 x 6 APC with overhead cover
BTR-152U	6 x 6 Armoured Command Vehicle
BTR-60P	8 x 8 Amphibious APC
BTR-60PK	8 x 8 Amphibious APC with overhead cover
BTR-60PB	8 x 8 Amphibious APC with turret

c. Satellite AFVs

OT-62	Amphibious APC with overhead cover
OT-64(CZECH)	8 x 8 Amphibious APC with overhead cover
FUG (OT-65)	Amphibious Armoured Reconnaissance Vehicle
FUG 66	Amphibious Armoured Reconnaissance Vehicle

AFV - Satellite AFVs (continued)

OT-64 (POLISH)	8 x 8 Amphibious APC with overhead cover
OT-64B	8 x 8 Amphibious APC with turret

d. Chicom AFVs

Type 59	Medium Tank (Chinese version of Soviet T-54A)
Type 62	Light Tank
?	Tracked APC

6. MT

a. Tractors

(1) Tracked (For Earthmoving Tracked Tractors see para 9a)

AT-T	Tracked Artillery Tractor - Heavy
AT-S	Tracked Artillery Tractor - Medium
ATS-59	Tracked Artillery Tractor - Medium
AT-L	Tracked Artillery Tractor - Light
AT-L (MOD)	Tracked Artillery Tractor - Light
Ya-12	Tracked Artillery Tractor - Diesel
Ya-13	Tracked Artillery Tractor - Petrol
AT-P	Tracked Artillery Tractor - Armoured
AT-P (Mod)	Tracked Artillery Tractor - Armoured
GT-S	Tracked Transporter (GAZ-47) - Medium
GT-T (?)	Tracked Transporter M1965(?)

(2) Wheeled Non-Engineer Tractors (for Engr Associated Tractors see para 9c)

MAZ-537	Truck Tractor 8 x 8
ZIL-137	Truck Tractor Semi-trailer Combination 10 x 10

b. Wheeled Vehicles

GAZ-33	Truck 6 x 4
GAZ-34	Truck 6 x 6
GAZ-51	Truck 4 x 2
GAZ-51A	Truck 4 x 2
GAZ-53A	Truck 4 x 2
GAZ-53F	Truck 4 x 2
GAZ-63	Truck 4 x 4
GAZ-66	Truck 4 x 4
GAZ-66A	Truck 4 x 4
KrAZ-214	Truck 6 x 6) NOTE: Earlier Models YaAZ
KrAZ-219	Truck 6 x 4)
KrAZ-255	Truck 6 x 6
KrAZ-256	Truck Tipper 6 x 4
KrAZ-257	Truck 6 x 4
KrAZ-258	Truck Tractor 6 x 4
M-72	Motorcycle Combination
MAZ-200	Truck 4 x 2
MAZ-500	Truck 4 x 2
MAZ-501	Truck 4 x 4
MAZ-502	Truck 4 x 4
MAZ-503	Truck 4 x 4
MAZ-505	Truck 4 x 4
GAZ/UAZ-69	Truck 4 x 4

MT - Wheeled Vehicles (continued)

GAZ-UAZ-69A	Truck 4 x 4
UAZ-450D	Truck 4 x 4
UAZ-451D	Truck 4 x 2
UAZ-452	Truck 4 x 4
UAZ-469	Truck 4 x 4
URAL-375	Truck 6 x 6
URAL-377	Truck 6 x 4
URAL-379	Truck 6 x 6
YaAZ-210G	Truck 6 x 4
YaAZ-210	Truck 6 x 4
ZAZ/LuMZ-969	Truck 4 x 4
ZIL-130	Truck 4 x 2
ZIL-131	Truck 6 x 6
ZIL-133	Truck 6 x 4
ZIL/BAZ-135	Truck 8 x 8
ZIL-150	Truck 4 x 2)
ZIL-151	Truck 6 x 6) NOTE: Earlier Models of ZIS
ZIL-157	Truck 6 x 6
ZIL-164	Truck 4 x 2
MAZ-535	Truck 8 x 8
MAZ-543	SCUD-B TEL Vehicle 8 x 8
-	FROG-7 TEL Vehicle 8 x 8
-	Shaddock TEL Vehicle 8 x 8

c. Amphibious Vehicles

PTS	Amphibious Transporter Medium
K-61	Amphibious Transporter
MAV	Truck Amphibious 4 x 4 (GAZ-46)
BAV	Truck Amphibious 6 x 6 (485)
BAV-A	Truck Amphibious 6 x 6 (485-A)

7. RIVER CROSSING EQUIPMENT

a. Reconnaissance Equipment

MPK	Swim Suit
-	SOVIET Ice Gauge M1962
-	SOVIET Hydrometer M1962

b. Boats and Propulsion Units

NDL-10 & NDL-20	Pneumatic Assault Boat
LG 12	Pneumatic Assault Boat
NL-5	Reconnaissance Boat (pneumatic)
LMN	Reconnaissance Boat (pneumatic)
DL-10	Folding Assault Boat
DSL	Folding Assault Boat
BMK-70	Motor Tug
BMK-90	Motor Tug
BMK-130 and BMK-130M	Motor Tug
BMK-150 and BMK-150M	Motor Tug
SMK-75	Motor Launch
LMV-46	Motor Oar
SZM-45	Outboard Motor
Moskva	Outboard Motor

RIVER CROSSING EQUIPMENT (continued)

c. Floating Bridges and Ferries

TZI	Infantry Footbridge
PVD-20	Light Bridge for Airborne Forces
LPP	Light Pontoon Bridge
DLP	Pontoon Bridge
TMP	Heavy Pontoon Bridge
TPP	Heavy Pontoon Bridge
PMP	Heavy Folding Pontoon Bridge
SP-19	Heavy Self Propelled Pontoon Bridge
-	SOVIET Heavy Girder Floating Bridge M1961
-	SOVIET Heavy Self Propelled Pontoon M1965
GSP	Heavy Amphibious Ferry. Made up of GSP(L) and GSP(R)

d. Mobile and Portable Bridges

PVM	Foot Suspension Bridge
-	SOVIET Telescopic Trestle Bridge M1961
KMM	Truck Mounted Treadway Bridge
MTU	T-54 Tank Launched Assault Bridge
-	T-54 Tank Launched Assault Bridge M1967 (?) (c)
TMM	KrAZ-214 Mounted Scissors Bridge
-	SOVIET Heavy Girder Bridge M1962 (possible TRM)
KMS	Bridge Erection Set

8. MINE WARFARE AND DEMOLITION EQUIPMENT

a. Mines (Anti-personnel - PPM and Anti-tank - PTM)

KhF-1 & KhF-2	Chemical
MON-100	Directional Fragmentation (A Pers)(c)
MON-200	Directional Fragmentation (A Pers)(c)
OZM-3	Bounding Fragmentation (A Pers)(c)
OZM-4	Bounding Fragmentation (A Pers)(c)
PMD-6	Wooden Blast A Pers
PMD-6M	Wooden Blast A Pers
PMD-7	Wooden Blast A Pers
PMD-7ts	Wooden Blast A Pers
PMD-57	Wooden Blast A Pers
PMK-40	Scatter Blast A Pers
PMN	A Pers Mines
PMP	A Pers Mines. Not yet identified (s)
POMZ-2, POMZ-2M	Stake Fragmentation A Pers
TM-41	A Tk Metal Blast
TM-44	A Tk Metal Blast
TM-46	A Tk Metal Blast
TMN-46	A Tk Metal Blast
TMB-2/TMSB	A Tk Cardboard/Tar Blast
TMD-B/TMD-44	A Tk Wooden Blast
TMK-2	A Tk Shaped Charge (s)
UITM-60	A Tk Training Mine
U.....	Training Version of..... Mine
YAM SERIES	A Tk Wooden Blast
-	SOVIET Plexiglass Mine M1961 (c)

MINE WARFARE AND DEMOLITION EQUIPMENT (continued)

b. Fuzes and Igniters

Dsh-34	Detonating Cord
Dsh-36	Detonating Cord
Dsh-39	Detonating Cord
Dsh-43	Detonating Cord
F-10	Remote Control Detonator
MUV	Pull Release Fuze
MUV-2	Pull Release Fuze
MV-5	Pressure Fuze
MVM	Fuze for TM-46 & TMN-46
MD-2	Detonator for Mine Fuzes
MD-5	Detonator for Mine Fuzes
MD-5M	Detonator for Mine Fuzes
MD-6	Detonator for Mine Fuzes
No.8 TAG/TAT	Non Electric Detonator
VPF	Pull-push Fuze
VZ-2 or ChVZ	Vibration Fuze
VZD-6Ch	Time Delay Fuze
ZTP-50	Safety Fuze/Detonator Set (s)
ZTP-150	Safety Fuze/Detonator Set (s)
ZTP-300	Safety Fuze/Detonator Set (s)
-	SOVIET Detonator Electric (Instantaneous)
-	SOVIET Detonator Electric (Delay)
-	SOVIET Anti lift Fuze for TMN-46

c. Explosives and Charges

Plastit-4	Plastic Explosive (s)
SZ-1	Slab Charge (s)
BPM	Large Limpet Charge (s)
KZ Series	Shaped Charges
MPM	Small Limpet Charge (s)
UZ-1	Bangalore Torpedo
UZ-2	Bangalore Torpedo
UZ-3	Bangalore Torpedo

d. Demolition Tools and Accessories

K-PM2	Exploder Dynamo Condenser
LMV-47	Ohmmeter (Large)
OK	Ohmmeter (Pocket)
PM-1	Demolition Exploder
PM-2	Demolition Exploder
SMP-1	Bolt Gun (s)
-	SOVIET Exploder Test Set M1962 (c)

e. Mine Clearance Devices

PT-54	Mine Clearing Roller
PT-55	Mine Clearing Roller
-	SOVIET Mine Clearing Grapnel

MINE WARFARE AND DEMOLITION EQUIPMENT (continued)

f. Mine Laying Devices

PMR-2	Mine Dispensing Trailer (Twin Chute Surface Dispenser)
PMR-3	Mine Digging & Dispensing Trailer (Single Chute with Plough Attachment)
PMR-60	Mine Digging & Dispensing Trailer (Modified Single Chute with Plough Attachment)
-	Mine Laying Cord
-	SOVIET Armoured Tracked Minelayer M1965(?) (c)

g. Mine Detectors

UMIV	Telescopic Detector/Prodder
VIM-203	Telescopic Detector/Prodder
VIM-210	Models 1939 and 1940
-	SOVIET Mine Detector M1965/1
-	SOVIET Mine Detector M1965/2
VIM-625	Model 1942
VIM-695	Model 1942
-	SOVIET 3 Search Coil M1940
-	SOVIET Veh Mounted (UAZ-69) Mine Detector M1962
IMP-1966	SOVIET Transistorized Mine Detector
MSG	EAST GERMAN Mine Detector

9. EARTH MOVING EQUIPMENT

a. Crawler Tractors

T-4	Light Tractor
DT-16G	Light Tractor
KD-35	Light Tractor
DT-54 & DT-54A	Light Tractor
DT-55 & DT-56	Light Tractor (Modified DT-54)
S-60 & S-65	Medium Tractor
S-80, S-100, S-100 GP, S-140	Medium Tractor
T-75	Medium Tractor
T-108	Medium Tractor
T-140	Heavy Tractor
T-220	Heavy Tractor
DET-250	Heavy Tractor

b. Combat Plant

BTU	Dozer Attachment for Tanks
BAT	Engr Version of AT-T
BAT-M	Engr Version of AT-T with crane
MDK-2	Tracked Rotary Excavator
MDK-3	Combat Excavator (Not yet identified) (S)

c. Wheeled Tractors Engineer Associated

MoAZ-546	Mono Axle Prime Mover
MAZ-529	Mono Axle Prime Mover
BeLAZ-531	Mono Axle Prime Mover
T-125	Tractor Prime Mover
T-210	Tractor Prime Mover
K-700	Tractor Prime Mover

EARTH MOVING EQUIPMENT (continued)

d. Rooters and Ploughs

PLT-60	Tractor Towed Plough
ZP-60	Tractor Towed Plough

e. Graders

V-10	Motorized
D-144	Motorized
D-265	Motorized
D-392	Motorized
D-394	Motorized
D-395	Motorized
D-426	Motorized
D-446 & D-446A	Motorized
D-465	Motorized
D-473	Motorized
D-512	Motorized
D-547 & D-548	Motorized
D-550	Motorized
D-557	Motorized
D-559	Motorized
D-598	Motorized

f. Scrapers

D-106	Towed
D-147	Towed
D-183	Towed
D-188	Towed
D-213 & D-213A	Towed
D-217	Towed
D-222 & D-222A	Towed
D-230	Towed
D-354	Towed
D-374	Towed
D-523	Towed
D-189	Motorized
D-357G	Motorized
D-468	Motorized
D-547	Motorized
D-567	Motorized

g. Excavators

K-102	Wheeled
K-123 & K-124	Wheeled
E-153	Wheeled
E-255	Wheeled
E-302A	Wheeled
E-656	Wheeled
E-305V	Truck Mounted
E-305A	Truck Mounted
E-2511	Crawler Mounted
E-352	Crawler Mounted

EARTH MOVING EQUIPMENT - Excavators (continued)

E-505, E-651 & E-652	Crawler Mounted
E-801	Crawler Mounted
OM-201 & OM-202	Crawler Mounted

h. Cranes

K-2 and K2, 5-2	Lorry Mounted
K-5 and K-3G51	Lorry Mounted
K-32	Lorry Mounted
K-51	Lorry Mounted
K-52	Lorry Mounted
K-61	Lorry Mounted
K-63	Lorry Mounted
K-64	Lorry Mounted
K-67, K-68 & K-69	Lorry Mounted
K-104	Lorry Mounted
K-162	Lorry Mounted
LAZ-690	Lorry Mounted
SMK-7	Lorry Mounted
MKA-10, MKA-10G & MKA-10M	Lorry Mounted
K-102	Wheeled
K-123 & K-124	Wheeled

j. Augers

BKM-1	Mounted on GAZ-63
BKGM-63-2	Mounted on GAZ-63
BKGM-AN63	Mounted on GAZ-63
BKGM-66	Mounted on GAZ-51
MTZ-13	Screw Pile
MPK-1A	Mounted on ZIL-157

k. Trenchers

BTM	Mounted on ATT chassis
ER7A	Mounted on S-100 tractor chassis
ET-121	Mounted on DT-54 tractor chassis
KG-65 & ETR-152	Mounted on S-80 tractor chassis

l. Compressors

ZIF-VKS-5	Trailer mounted
KS-6	Trailer mounted
KSE-6	Trailer mounted
VKS-6	Trailer mounted
KS-200	Truck mounted

10. FIELD SHELTERS

FVKP-M1	Filtered Ventilation Plant(s)
KBM	Condenser Paper Type (s)
KDSV	Curvilinear Paper Type (s)
KFU	Plywood Type (s)
KTS	Cloth Frame Type (s)
KVS-A	) Corrugated Iron Type (s)
KVS-U	
FVS	

11. GUIDED MISSILES

a. Surface to Air

GUIDELINE
GANEF
GAINFUL

b. Surface-to-Surface

SIBLING	Tactical Ballistic Missile
SCUD A	Tactical Ballistic Missile
SCUD B	Tactical Ballistic Missile
SCUD B ON)	
MAZ-543)	Tactical Ballistic Missile
SHADDOCK	Tactical Cruise Missile
SALISH	Tactical Cruise Missile
SHYSTER	Ballistic Missile
SS-12	Ballistic Missile
SCALEBOARD	Ballistic Missile

c. Anti-tank

SNAPPER	(on BRDM)
SNAPPER	(on UAZ-69)
SWATTER 1	(on BRDM)
SWATTER 2	(on BRDM)
SAGGER	(on BRDM)
SAGGER	(Man-portable)
SAGGER	(on AAICV M1967 (?))

12. SIGNAL EQUIPMENT

a. Radio

Soviet Bloc

R-010	Keyboard Morse Sender (DKM)
R-100	Insufficient data to assess type or role (c)
R-101	Insufficient data to assess type or role (c)
R-102	HF Mobile Radio Station
R-102M-2	HF Mobile Radio Station
R-103	HF Mobile Radio Station
R-103M	HF Mobile Radio Station
R-104	HF Radio Transmitter-Receiver (Vehicle or Manpack)
R-104M	HF Radio Transmitter-Receiver (Basic Set and Vehicle Station)
R-104UM	HF Radio Transmitter-Receiver (Manpack and Ground Station)
R-104AM	HF/VHF Mobile Radio Station (R-104M/R-105d)
R-105 (R-105d)	VHF Radio Transmitter-Receiver (Vehicle or Manpack)
R-105M	VHF Radio Transmitter-Receiver (Vehicle or Manpack)
R-106	VHF Radio Transmitter-Receiver (Manpack)
	Obsolescent
R-107	Insufficient data to assess type or role (c)
R-108 (R-108d)	VHF Radio Transmitter-Receiver (Vehicle or Manpack)
R-108M	VHF Radio Transmitter-Receiver (Vehicle or Manpack)
R-109 (R-109d)	*VHF Radio Transmitter-Receiver (Vehicle or Manpack)

SIGNAL EQUIPMENT - Radio - Soviet Bloc (continued)

R-109M	*VHF Radio Transmitter-Receiver (Vehicle or Manpack)
R-110	HF transportable radio station (c)
R-111	Insufficient data to confirm existence
R-112	HF Radio Transmitter-Receiver (Command AFVs)
R-113	*VHF Radio Transmitter-Receiver. AFVs.
R-114 (R-114d)	*VHF Radio Transmitter-Receiver, (Vehicle or Manpack)
R-114M	*VHF Radio Transmitter-Receiver, (Vehicle or Manpack)
R-115	Insufficient data to assess type or role
R-116	VHF Radio Transmitter-Receiver (Manpack). Obsolete.
R-117	Insufficient data to assess type or role (c)
R-118	HF Mobile Radio Station
R-118BM	HF Mobile Radio Station
R-118BM-3	HF Mobile Radio Station
R-119	Insufficient data to confirm existence
R-120	Intercommunication unit used with R-112 and R-113
R-122	Probable Radio Equipment (c)
R-125	HF/VHF/VHF Mobile Radio Station. (R-104M/R-105d/R-105d)
R-125M	HF/VHF/VHF Mobile Radio Station. (R-104M/R-105M/R-105M)
R-125A	HF/VHF/VHF Mobile Radio Station. (R-104M/R-108d/R-108d)
R-125AM	HF/VHF/VHF Mobile Radio Station. (R-104M/R-108M/R-108M)
R-125P	HF/VHF/VHF Mobile Radio Station. (R-104M/R-109d/R-109d)
R-125PM	HF/VHF/VHF Mobile Radio Station. (R-104M/R-109M/R-109M)
R-126	VHF Radio Transmitter-Receiver (Manpack)
R-128	VHF Radio Beacon (Portable)
R-154	HF Receiver for RTT
R-154-2M	HF Receiver for RTT
R-250	General Purpose HF Receiver
R-250M	General Purpose HF Receiver
R-251	General Purpose HF Receiver
R-252	Probable LF Receiver (c)
R-253	Receiver
R-256	Probable Receiver (c)
R-301	HF DF Radio Station, mobile (c)
R-305	Transportable HF DF Receiver (s)
R-310	HF Receiver
R-311	General Purpose HF Receiver
R-312	HF-VHF Receiver
R-313	VHF Receiver
R-314	VHF/UHF Receiver (c)
R-317	Panoramic Adaptor for HF Receivers
R-327	Receiver Adaptor for RTT
AMUR-2	HF Receiver for RTT, associated with R-102, R-103 R-118
R-400	UHF Mobile Radio Relay
R-400M	UHF Mobile Radio Relay
R-401	VHF Mobile Radio Relay
R-401M	VHF Mobile Radio Relay
R-402	UHF Mobile Radio Relay (s)
R-403	Same as R-401 but terminal station only
R-403M	Same as R-401M but terminal station only
R-403BM	Same as R-401M terminal station but voice only
R-404	UHF Mobile Radio Relay

*Actually in the HF band, but always called "a VHF set" by the Soviets.

Note: The UK term "Transmitter-Receiver" corresponds to the AUS/CAN/US term "Transceiver".

SIGNAL EQUIPMENT - Radio - Soviet Bloc (continued)

R-405	VHF/UHF Mobile Radio Relay
R-407	VHF Radio Transmitter and Receiver (Portable)
10-RT	HF Radio Transmitter-Receiver. AFVs. Obsolete.

Communist China*

63	HF Transmitter-Receiver (Manpack)
71)	HF Transmitter and Receiver (Manpack)
(71B, 71B1))	
103	HF Transmitter and Receiver (Portable)
156)	HF Transmitter and Receiver (Portable)
(55B, 81, 102E, X-D6))	
E459)	VHF Transmitter-Receiver (Manpack)
(702 "Walkie-Talkie '2")	
601 (601C)	HF Transmitter (Transportable)
139	HF Receiver (Manpack)
7512	General purpose HF Receiver (Transportable)

b. Line

Soviet Bloc

P-100	BAUDOT type telegraph terminal equipment (c)
P-106	Facsimile equipment
P-106M	Facsimile equipment
P-152	Field Loudspeaker Intercommunication System
P-191M	Field Teleprinter Switchboard
P-193	Field Telephone Switchboard (magneto)
P-193M	Field Telephone Switchboard (magneto)
P-194M	Field Telephone Switchboard (magneto)
P-198	Field Telephone Switchboard (Central Battery)
P-203	Field Cable Terminal Box (10-pair)
P-270	Field Cable, four-wire, carrier
P-270M	Field Cable, four-wire, carrier frequency up to 270 kHz
P-271	Field Cable, four-wire, carrier frequency up to 20 kHz
P-274	Field Cable local lines
P-274M	Field Cable local lines
P-275	Field Cable twisted pair
P-281	Field cable drum carriage
P-284M	Field cable laying plough
P-296	Field cable
P-297	Indoor wiring telephone cable, twin
P-299	Mobile communications centre
P-299M	Mobile communications centre
P-309-I	Telephone channelling equipment, single channel, FDM
P-309-II	Telephone channelling equipment, single channel, FDM
P-310	Telephone channelling equipment, three channel, FDM
P-311	Telephone channelling equipment, single channel, FDM
P-312	Telephone channelling equipment, single channel, FDM
P-312M	Telephone channelling equipment, single channel, FDM
P-313	Telegraph channelling equipment, three channel, VFT
P-314	Telegraph channelling equipment, three channel, VFT
P-316	Telegraph channelling equipment, six channel, VFT(c)
P-318	Telegraph channelling equipment, six channel, VFT

SECRET

AUS/CAN/UK/US EYES ONLY

SIGNAL EQUIPMENT - Line - Soviet Bloc (continued)

ST-2M	Teleprinter, modified ST-35
STA-2M	ST-2M with tape perforator and transmitter attachments
ST-35	Teleprinter
TAI-43	Field telephone, magneto
TA-57	Field telephone, magneto

Communist China*

Q-07.1	Field telephone
0716	Field telephone
E 0754)	
(0743))	Field telephone
B-600	Field telephone
B-611	Field telephone switchboard, 10-line, magneto

*Equipment nomenclatures shown in () are alternative nomenclatures for electrically and mechanically identical equipments.

13. ELECTRONIC WARFARE

a. Communications (Classifications refer to designation and role only)

Nickname	SOVIET Designation	Role
FIX FOUR	PKV-45	HF DF System, mobile (c)
FIX SIX	-	HF DF System, mobile (c)
FIX EIGHT	R-301	HF DF System, mobile (c)
LOOP THREE	-	Believed HF DF System, mobile (s)
RING TWO	-	Believed HF DF System, mobile
SPIKE TWO	-	VHF DF System, mobile (s)
SQUARE PICK	-	Probable VHF DF Radio Station, Mobile(c)

b. Non-Communications (SECRET)

Nickname	SOVIET Designation	Role
BRICK ROUND	RPS-1	S- and X-bands intercept and DF
BRICK SQUARE	ARS-1	L- and S-bands intercept and DF
FOLD PLATE	-	
HAT BRICK	-	
HIGH BRICK	-	
CHEESE BRICK	SPB-1	X-band intercept and jamming
MOUND BRICK	-	
TUB BRICK		

14. GROUND RADARS (SECRET)

a. Early Warning

Nickname	SOVIET Designation
FLAT FACE	P-15
SPOON REST-A	P-12
SPOON REST-B	-
SQUAT EYE	-

GROUND RADARS

b. AA Fire Control (CONFIDENTIAL)

FIRE CAN*	SON 9, 9a
FIRE WHEEL	SON 30
WHIFF*	SON 4
GUN DISH	-
FLAP TRACK	-
FLAP WHEEL	-

c. SAM Fire Control (SECRET)

FAN SONG A	-
FAN SONG B	-
FAN SONG C	-
FAN SONG E	-
LOW BLOW	-

d. Field Artillery (SECRET)

PORK TROUGH	Probably SNAR-2, '2a
SMALL YAWN	Possibly ARSOM-2
TRACK DISH	Possibly ARSOM-1

e. Meteorological (SECRET)

END TRAY
BREAD BIN

f. Unidentified role (CONFIDENTIAL)

POLE DISH

*Copies of these radars have been manufactured by Communist China.

15. AIRBORNE

a. Transport Aircraft

CAB	(LI-2)	CLEAT	(TU-114)
COACH	(IL-12)	CUB	(AN-12)
CRATE	(IL-14)	COKE	(AN-24)
CAMP	(AN-8)	COOKPOT	(TU-124)
CAMEL	(TU-104)	CLASSIC	(IL-62)
CAT	(AN-10)	CRUSTY	(TU-134)
COOT	(IL-18)	COCK	(AN-22)

b. Transport Gliders

MARE
MIST

c. Helicopters

HOOK	(MI-6)
HORSE	(YAK-24)
HOUND	(MI-4)
HARE	(MI-1)

AIRBORNE - Helicopters (continued)

HEN	(KA-15)
HOG	(KA-18)
HOOP	(KA-22)
HIP	(MI-8)
HARP	(KA-20)
HARKE	(MI-10)
HOPLITE	(MI-2)
-	(KA-26)

d. Parachutes (Airborne)

PD-6
PD-47
PD-41-1
D-1

e. Aerial Containers (incl paras)

PDMM-47	PDSB-1
PDTZh-120	PGS-500
MT-002	GK-30 Container
OKS-4	P-85 Container
PDBB-120u	P-101 Crate
PDUR	PP-127-3500 (Platform)
PRS-3500	(Platform with Retro-Rockets Device)

f. Light Aircraft

COLT	(AN-2)
CREEK	(YAK-12)
MAX	(YAK-18)
CLOD	(AN-14)
MAGNUM	(YAK-30)
MANTIS	(YAK-32)
MAYA	(L-29)

16. FLAME THROWERS

ATO-42	Tank mounted
ROKS-3	Portable
FOG-2	Emplaced
LPO-50	Light Portable
TPO-50M	Cart Mounted
FO	Emplaced

17. SMOKE (s)

a. Hand Grenades

RDG-1
RDG-2kh
RDG-2ch

b. Generators

DM-11	Pot
DB-11	Barrel
BDSH-5	Barrel
MDSH	Barrel
DSh	Barrel
DSh-100	Barrel
DMKh-5	Pot
DSKh-15	Barrel
SK	(?)

18. **CHEMICAL (Protective Equipment and Clothing)**
- a. **Respirators**

Shlem-1	Role
GP-4, GP-4u	General Purpose
K-mask	
"Optical" mask (EG?)	
 - b. **Oxygen Breathing Apparatus**
KIP-5 (and 6?)
IP-46
 - c. **Canisters**
MO-2
MO-4 and MO-4u Operational (c)
GP-2 and 4
Ub (EG)
 - d. **Clothing**
OP-1
SBU-61 (EG)
L-1 (Light Protective Suit)
ZFO-58
19. **CHEMICAL (Warning & Detection)**
- a. **Warning**
GSP-1
 - b. **Detection**
PKhR-46
PKhR-54
(VPKhR)
(WPKhR-64 (in EG))
CHNS (EG)
20. **CHEMICAL (Recce and Marking)**
- a. **Recce**
BRDM-rkh
GAZ-69-rkh
OT-65-rkh (Hungary)
 - b. **Marking**
SKhT (signal cartridge)
21. **CHEMICAL (Decontamination)**
- a. **Personal Decontamination and Treatment**
IPP
EP-60 (EG)
EP-62 (EG)
MSP-18 (EG)
IDP
PKhS ("Aidman")
 - b. **Portable Decontamination Equipment**
ADK
GES-10 (EG)
RDP-4v
TEG-57 and 57A (EG)

CHEMICAL - Portable Decontamination Equipment (continued)

IDK-1 (or DK-1)
IDK-1 improved
DK-2
DK-3
DK-4
EEA-61 (EG)
EA-64 (EG)

c. Vehicle Decontamination Equipment

EW-1 and 2 (EG)
ADM-48
ARS-12D and 12U
GEW-1 (EG)
GEW-2 (EG)
GEW-3 (EG)
DDA-53 and 53A
AGV-3 (or AGW-3 in EG)
DA-2 and DA-2-S (EG)
BU-4

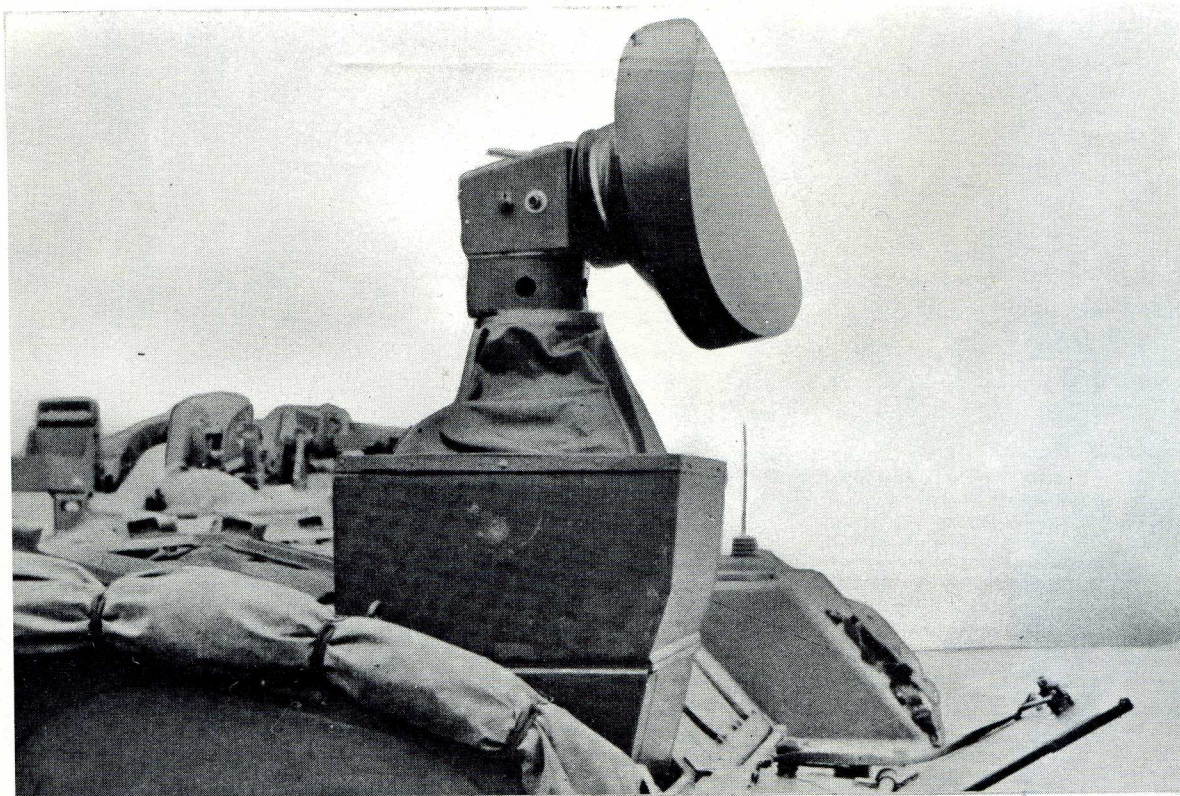
22. NIGHT VISION DEVICES

TPN-1	Tank Gunners IR Sight
TKN-1	AFV Commanders IR Lamp/Periscope Combination
TVN-1	AFV Drivers Monocular IR Periscope
TVN-2 & 2B	AFV Drivers Binocular IR Periscope
PPN-2	Assault Rifle IR Sniperscope
NSP-2	Assault Rifle IR Sniperscope
PNV-57	Helmet Mounted Drivers IR Binoculars
APN 3-5	Anti-Tank Gun IR Sight

12. French Battlefield Surveillance Radar

France currently has in service or under development several radars designed to aid in the detection of enemy personnel and equipment on any future battlefield. They range from vehicle mounted equipments which can cover a large sector to man-portable battery powered surveillance devices for use by forward infantry units.

The RASIT (Radar de Surveillance des Intervalles) is a fully transistorised surveillance radar currently under development by the Central Telecommunications Laboratory of Paris. It is mounted on a French AMX-13 tracked chassis and has a detection range of 15 km (9.5 miles) against vehicles and 7 km (4.5 miles) against personnel. The RASIT has no facility for observation of artillery fire. Production was due to start in 1969 but has been postponed because of financial considerations.



RASIT

The current in-service French short range surveillance radar is RASURA. This entire radar system weighs 88 lb (40 kg) and is carried by two men. It was developed by Electronique Marcel Dassault under the direction of the French Ministry of Defence and given field trials during the Algerian conflict. The presence of a moving target in the area under surveillance by RASURA is indicated by an audible alarm signal. Depending on the intensity level and rhythm of this signal the operator can identify and estimate the nature and the number of targets under observation. Limited numbers have been sold to West Germany and to the Netherlands.

Technical Characteristics (RASURA)

Max range:

Vehicle	5000 m	5470 yd
Man (crawling)	3000 m	3282 yd

Weight:	40 kg	88 lb
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Power Supply:

2 x 12 volt Nickel Cadmium
batteries

Operating time:

(per battery charging) 8 hr

**RASURA**

Two new systems are also under development as possible replacements for RASURA. They are the OLIFANT 1 and OLIFANT 2. Both are lightweight systems designed for use by infantry units and patrols. The former is an X-band radar while the latter operates in the Ku frequency band. The OLIFANT 1 with a total weight of 25 lb (11.5 kg) has performance figures comparable to those given for the OLIFANT 2.

**OLIFANT 2****Technical Characteristics (OLIFANT 2)**

Max range:

Vehicle	2300 m	2516 yd
Man (crawling)	400 m	437 yd

Weight:	8.6 kg	19 lb
---------	--------	-------

Power Supply:

2 x 12 volt Nickel Cadmium batteries

Operating time:

(per battery charging) 12 hr



OLIFANT 1

The French effort in the field of ground surveillance radar has been considerable and they must be ranked as one of the leading developers in this area.

13. SNAPPER Anti-Tank Missile

SNAPPER, which was first seen in 1962 in Moscow, is now obsolete in the Soviet Army and has been replaced by the lighter and more mobile SAGGER.

However, this missile has been exported by Russia for some time and is in service in many countries throughout the world. Countries holding SNAPPER include East Germany, Poland, Czechoslovakia, Rumania, Hungary, Yugoslavia, United Arab Republic, Syria, Afghanistan and Cuba. The latest country to acquire the GAZ-69 system is Israel - by kind permission of the retreating Egyptian Army.

The Israeli Defence Force were unimpressed with SNAPPER, but this is not surprising since the weapon was handled with little skill and rather less determination in unfavourable country.

The main disadvantage of SNAPPER is the standard of operator required. The control equipment, both for the vehicle and on the ground, is light and simple but the penalty paid for this is that the operator requires considerable ability, training and practice before he can guarantee to fly the missile onto the target. In addition, a cool head is required during the 15 seconds that the gyros take to run up before a missile can be launched at the selected and hostile target and a steady hand is required during the further 20 seconds that the missile requires to reach extreme range. ?

However, each unit holds a truck mounted trainer to ensure thorough training of operators so that in the right hands the system is an effective weapon.



~~CHIEFTAIN TANK HIT BY SNAPPER~~

Characteristics

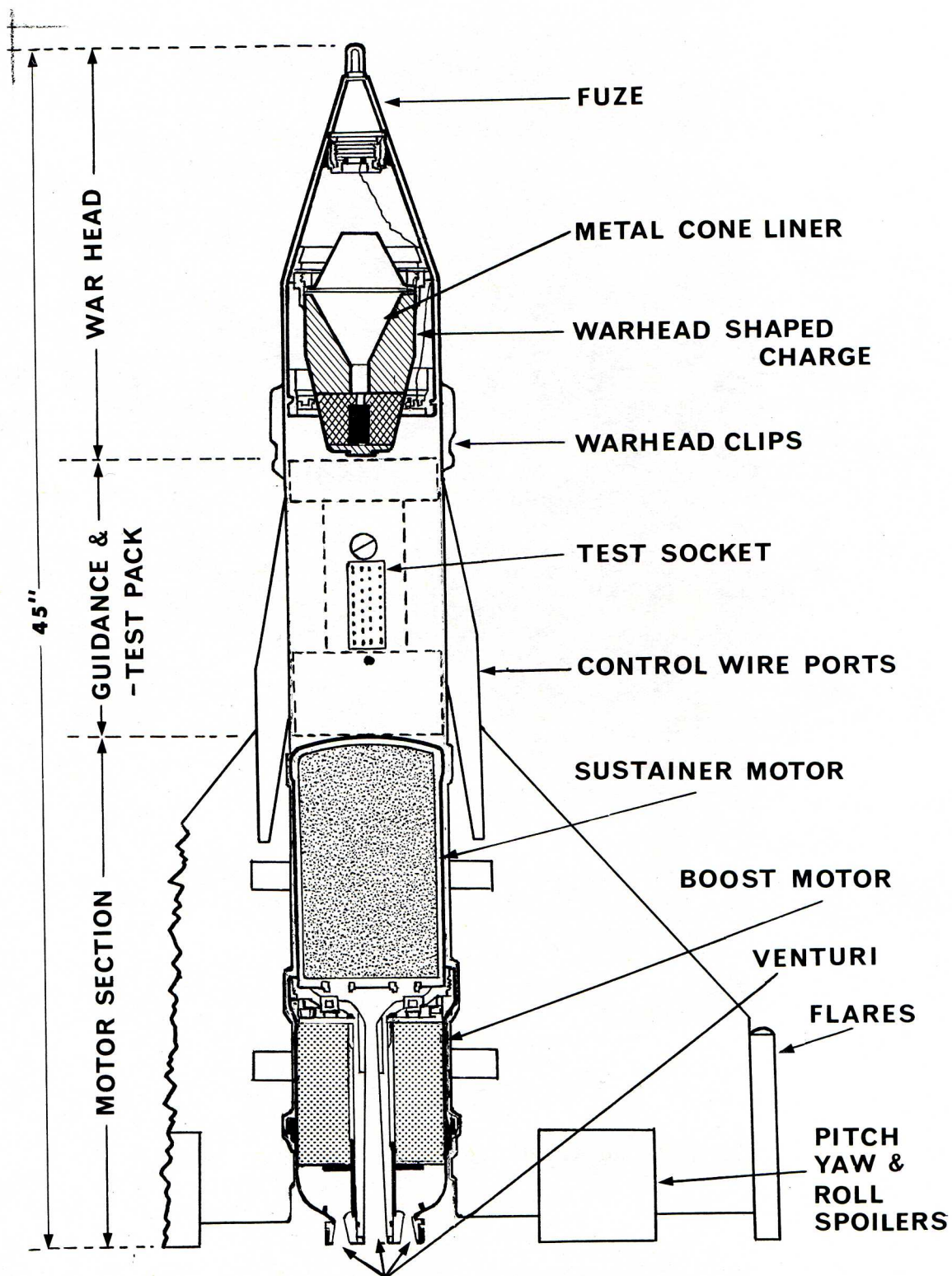
Classification	Wire Guided Anti-Tank Guided Weapon	
Designation	NATO AT1	Russian 3M6
Nickname	NATO SNAPPER	Russian SCHMEL
System	BRDM Mounted - three missiles	
	GAZ-69 Mounted - four missiles	
Guidance	Command guidance is employed using a wire link. The missile is steered aerodynamically by electrically operated spoilers on the fins. Separation between launcher and operator is available.	

Performance

Range	600 - 2000 m
Penetration	300 mm 12 in
Reliability	90%
Chance of a kill	50%
Time to Maximum Range	19 sec

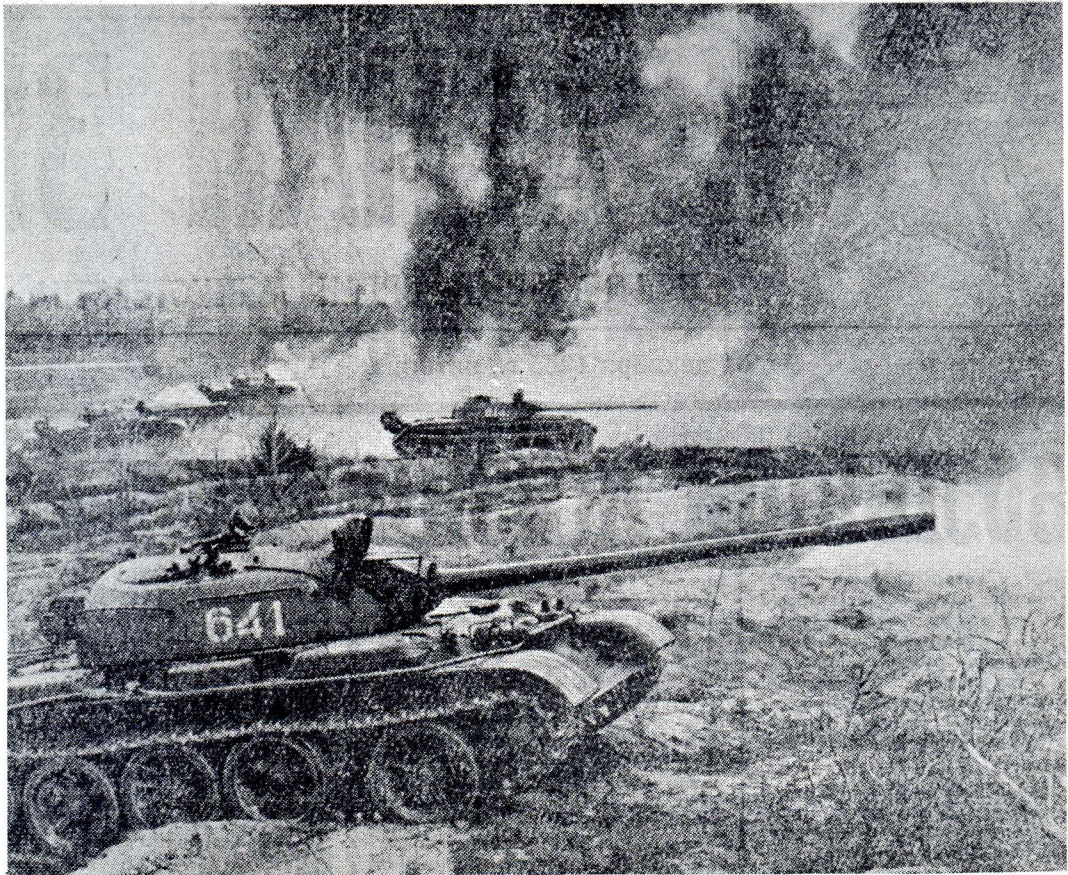
Technical Data

Length	1.14 m	45 in
Diameter	0.14 m	5.5 in
Weight	23 kg	51 lb
Warhead type	HEAT	
Propulsion	SOLID	



SNAPPER showing Interior

14. PAZ Atomic Defence System



INTRODUCTION

The Soviet medium tank T-55, at present the main battle tank in service in its army, is designed to give its crew members a fair degree of protection against the immediate effects of nuclear strikes and against exposure to residual effects in contaminated areas.

In addition to the inherent protection gained from operating inside an armoured vehicle a further refinement is the provision of the PAZ Atomic Defence System which is outlined in this article.

General

The PAZ system is designed to protect tank crew members against the initial nuclear shock wave and to prevent the access of radio-active dust into the crew compartment. This is achieved by ensuring that the tank is automatically hermetically sealed at the right moment, by providing a continuous overpressure within the tank and by admitting only filtered air to the crew when in a contaminated area.

Sealing

Before going into action in a nuclear environment the tank crews ensure that all hatches are closed and the air blower switched on. Of the remaining possible apertures in the tank hull some are permanently sealed and others are fitted with automatically closing shutters which are triggered off by a nuclear burst. The permanently sealed apertures are:

1. The main gun port - rubberised cover
2. The turret ring - rubber sealing ring in turret race
3. Coaxial MMG port - barrel sealed into port
4. Hull MMG port - barrel sealed into port
5. Engine compartment bulkhead:

Pipes, cables etc - rubber grommets
Connector rods - felt pads soaked in oil

The automatically closing seals are:

6. Telescopic sight port - rotating shutter
7. Engine louvres - adjustable inlet and outlet louvres
8. Fighting compartment exhaust ventilation - sliding vent shutters
9. Blower air supply duct - sliding vent shutters.

In each case, the automatically closing seals are held open against a spring by a lock which is kept in position by a spring loaded catch. This catch can be released either manually or by means of an electrically fired explosive charge (or squib), thus allowing the seal to close. The spring and squib-holder for the engine louvres can be seen in the picture of the driver's compartment.

Overpressure and Air Filtration

The blower in the turret together with the exhaust ventilator in the engine bulkhead circulate air and produce an overpressure in the fighting compartment of at least 0.0015 kg/cm^2 , at the same time incoming fresh air is filtered by the blower at a rate of 120 litres per second with an alleged air cleansing efficiency of 90%. The separated radioactive dust is exhausted through a small oblong port in the turret ring.

Automatic Sealing Action

The "nerve centre" of the PAZ system is the RBZ-IM radioactive protection unit which is installed in the fighting compartment on the left hand wall a few feet to the rear of the driver. This unit contains a 230cc ionised chamber for sensing radiation levels and a thyatron threshold device which trips when the radiation dose at the instrument reaches 3-6 r/sec providing a command signal to the two relay boxes KRP-1 and KRP-2. These relay boxes in turn activate the automatic closing devices already described.

The KRP-1 relay box has the additional functions of providing the master on/off switch for the PAZ system, giving warning if the equipment is faulty and of switching off the ventilator electric motor. The KRP-2 relay box stops the blower at the instant of the explosion if it is already working.

Thus in the time between the detection of the nuclear burst and the arrival of the shock wave the correctly prepared tank should become a completely sealed unit. Once the shock wave has passed over, the loader turns on the blower again, the squibs are replaced and the driver locks the louvres in position.

CONCLUSIONS

The PAZ system has not yet been properly evaluated and its efficiency has not been qualitatively established. However, protection of the T-55 tank crew against the blast effects of a nuclear burst appears to be good and the hermetic sealing of the tank sufficient to keep out radioactive dust in contamination areas. The performance of the centrifugal filter in the air blower system is difficult to assess since the size of particle against which it is 90% efficient is not clear. Assuming the particle size to be ten microns the resulting degree of filtration would be sufficient to protect the crew against radioactive elements but not against CW or BW attack. Wearing of the normal respirator by the crew inside their tank would overcome this problem initially, although subsequent decontamination of the interior of the vehicle might represent an insoluble problem. The early detection of a nuclear burst and the automatic sealing of the tank provided by the PAZ system are vital attributes to the performance of a main battle tank operating under conditions of nuclear warfare. The system installed in the Soviet T-55 can be expected to have been improved upon in the T-62 and to have become standard in all modern Soviet AFVs. In this respect the Soviets have a clear lead over any of their potential enemies and to have removed yet another obstacle to the battlefield mobility of their armoured forces.

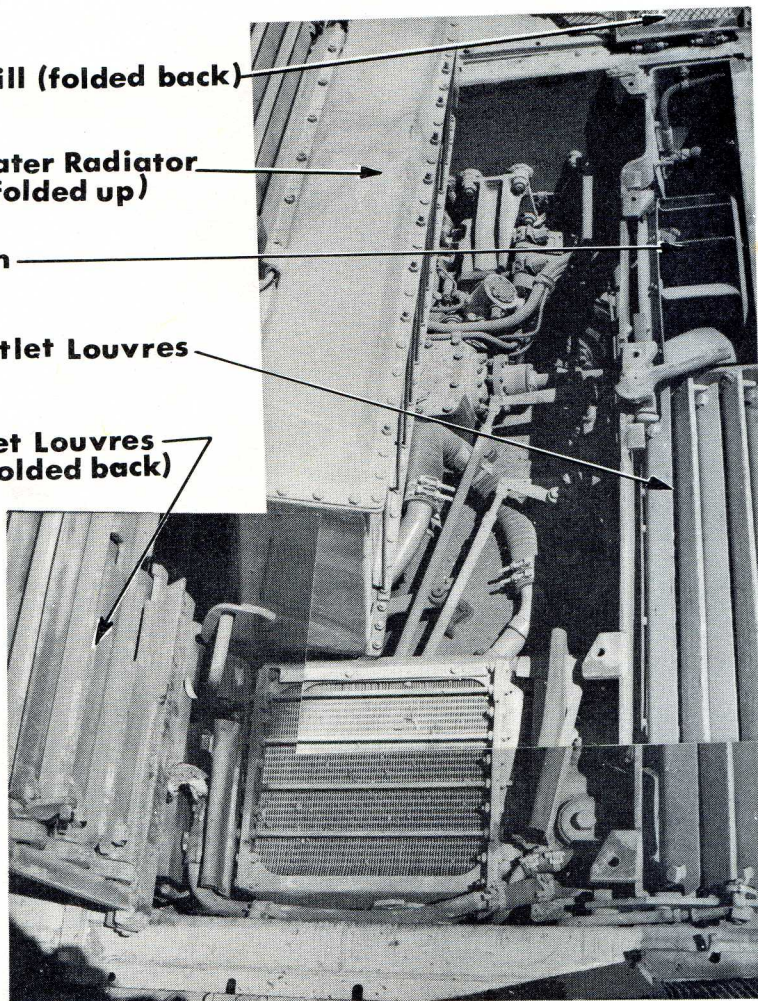
Grill (folded back)

Water Radiator
(folded up)

Fan

Outlet Louvres

Inlet Louvres
(folded back)



9. Air filtration and
overpressure blower

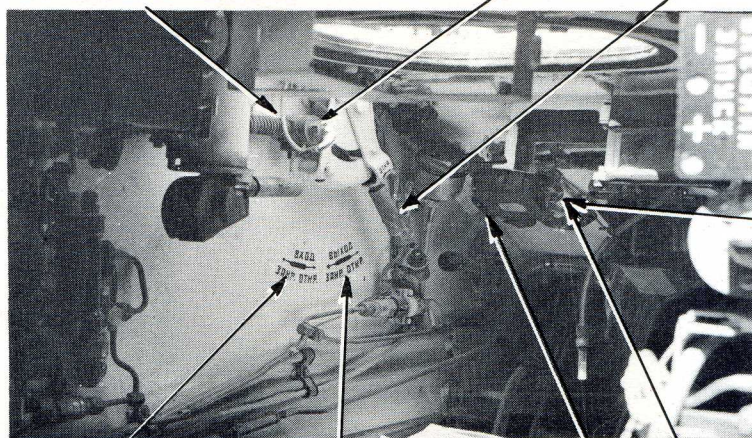
Filtered
Radio active
particles exhaust ve

7. ADJUSTABLE ENGINE LOUVRES

Drivers handle for adjusting louvres

Spring for
automatic action

Squib housing



INLET
Shut Open

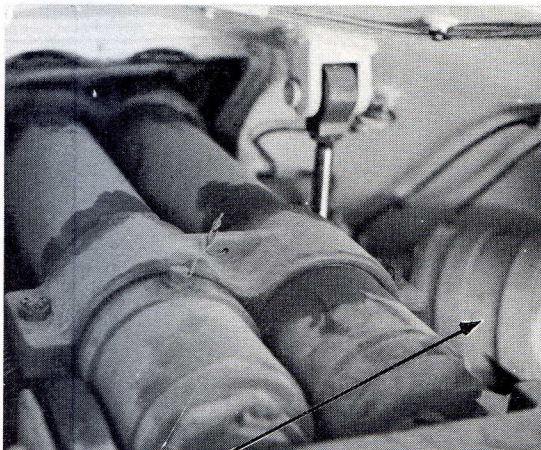
OUTLET
Shut Open

Start & Test
buttons
KRP 1 Relay box

3. Coax MMG port s



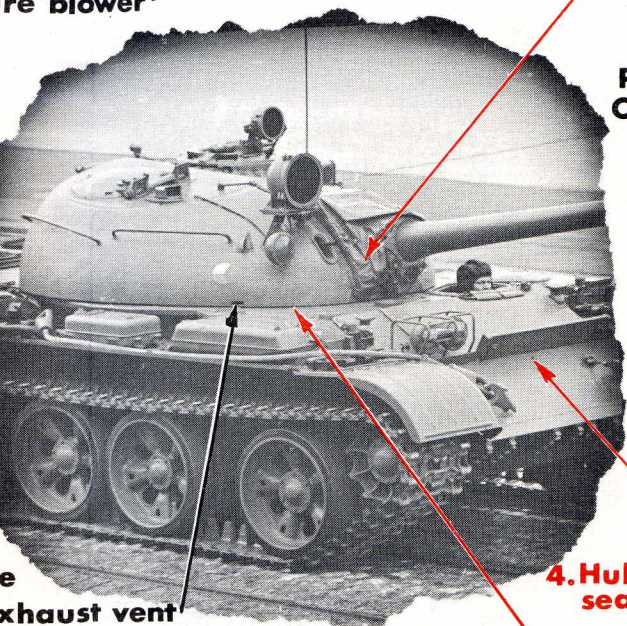
6. Sight port
rotating shutter



**PAZ ATOMIC DEFENCE
SYSTEM ON SOVIET
T-55 MEDIUM TANK**

on and
re blower

1. Main gun port rubber cover



e
xhaust vent

2. Rubber turret ring seal

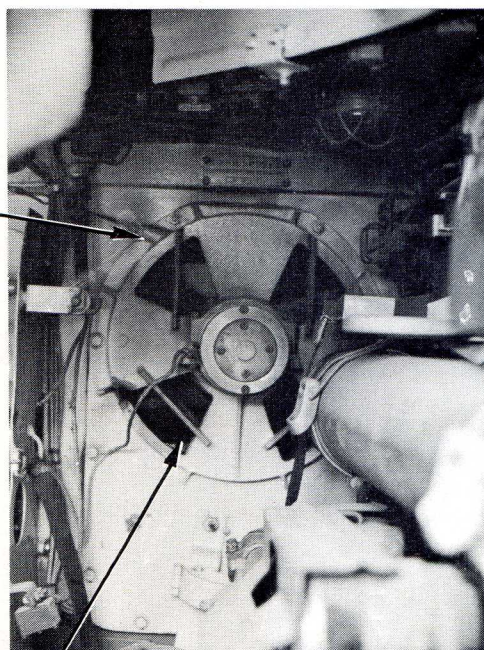
**4. Hull MMG
seal**

MG port seal



t port
ag shutter

**KRP2
Relay box**



**PAZ
Control
Cable**

**8. Adjustable exhaust ventilator
on engine bulkhead**

Radiometric protection unit RBZ-IM

